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ABSTRACT

This Indiana study reviewed the program by which students with severe disabilities are placed in alternative/residential services. It examined the types of children served, the services they receive, and the costs of these services. Data were collected from 299 applications for services in residential treatment and local alternative services. Most (64 percent) of the children were classified as emotionally disturbed, followed by autism (13 percent), severe mental handicap (5 percent) and hearing impairment (4 percent). Most of the students are male (81 percent) and about 70 percent have received a clinical mental health diagnosis, the most common being conduct disorder/oppositional disorder (20 percent). Seven risk characteristics and problem behaviors associated with one another were identified, including conduct disorders, developmental disability, juvenile delinquency, medical problems, serious emotional problems, and sexual problems. Three family risk factors were identified: a dangerous or abusive home situation, an unstable family history, and mental illness in the family. Most (54 percent) students were placed in alternative services in the community, 32 percent were placed in residential programs in state, and 14 percent went out of state. Local alternative placement averaged $33,000, whereas residential placement averaged $75,000 per contract, regardless of the specific services provided or child/family risk factors. Results strongly support strengthening the capacity of communities to provide services locally. Appended are a summary of national and state trends in care systems, data collection forms, data tables, and descriptions of three cost models. (Contains 21 references.) (DB)

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TRACKING THE COST OF CARE FOR STUDENTS WITH SEVERE DISABILITIES

A Fiscal Analysis of Indiana's Alternative/Residential Services

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TRACKING THE COST OF CARE FOR STUDENTS WITH SEVERE DISABILITIES

A Fiscal Analysis of Indiana's Alternative/Residential Services

by
Russell Skiba
Nick Vesper
Kwee-Hiong Ong
Barry Bull

INDIANA EDUCATION POLICY CENTER
Indiana University

Final Report to the Indiana Department of Education Division of Special Education
January 1997

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We are grateful to the Special Education Directors, Child Service Coordinators, and other school corporation representatives who participated in the training sessions and completed the coding system. Their willingness to work with us and the IDOE on the complex task of implementing a new data collection system is very much appreciated.

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Executive Summary

Since 1970, services for Indiana's special education students with the most severe disabilities have been provided under a legislative mandate commonly known as Indiana Rule S-5, which funded placements in private residential facilities for students with problems too severe to be addressed by traditional, local-level services. During the 1980s, the number of students served in residential placements and the cost of those placements escalated dramatically. A 1991 legislative amendment added a new initiative: Alternative Services, which allows funds previously reserved for residential placement to be spent developing local alternative services for these students in their local communities. Under this program, strategies such as "wraparound" services, intensive family intervention, and day treatment may be used to increase local resources and better address the complex problems of children with multiple needs.

In its first five years, the initiative led to a dramatic shift in placements for the state's special education students with the most severe disabilities. In 1989, 72% of those students were served in out-of-state residential programs; now only 13% are served in those locations. Even with this shift, however, funding for these placements has remained an issue, as costs for students served continue to rise rapidly.

In 1995 the Indiana Department of Education (IDOE) Division of Special Education contracted with the Indiana Education Policy Center to conduct a fiscal analysis for the contract year 1996-97 that would focus on the types of children served in Alternative/Residential Services, the services they receive, and the costs of those services. The Center and the Division collected data on demographics, risk factors, and types and costs of services. School corporation representatives received training in the study's coding procedure and completed the coding as part of their application for state funds through Alternative/Residential Services. Data were collected from 299 applications for services in residential treatment and local alternative services.

FINDINGS

Child/Family Risk Factors. The majority of students in the study are served under the classification of emotional handicap (64%), followed by autism (13%), severe mental handicap (5%), and hearing impairment (4%). The overwhelming majority are male (81%), and about 70% have received a clinical mental health diagnosis, the most common diagnosis being conduct disorder/oppositional disorder (20%). In order to identify groups of risk characteristics and problem behaviors that tend to be associated with one another, principal component factor analysis was conducted, yielding seven factors. *Conduct disordered/acting-out behavior* includes externalizing behaviors such as assault and hyperactivity. *Developmental disability* comprises factors usually associated with developmental disabilities and includes self-abuse and perseveration. *Juvenile delinquency* includes gang involvement and vandalism. *Conduct disordered/covert behavior* includes bringing concealed weapons to school and stealing. *Medical problems* includes seizures and eating disorders. *Serious emotional problems* includes attempted suicide and depression. *Sexual problems* includes history as a perpetrator of sexual offenses and inappropriate sexual behavior.

Three family risk factors were similarly identified. *Dangerous or abusive home situation* includes items such as physical or sexual abuse and placement out of the home. *Unstable family history* is characterized by items such as a history of family substance abuse, divorce or separation of the parents, and a history of family violence or criminal activity. *Mental illness in family* includes a history of family mental illness or institutionalization.

Types and Costs of Placement/Services. A majority of students in the study—54%—have been placed in alternative services in the community, 32% in residential programs in state, and 14% in residential programs out of state. Unsurprisingly, residential placement is far more costly. The cost of local alternative placements (about $33,300 per contract) averages slightly less than half that of residential placements (about $75,000 per contract), whether in state or out of state.

The most common services provided to these students include individual, group, and family counseling; case management; and room and board. The most costly services are room and board, interpreting, and assisted or supported living.

Children with serious medical problems are more likely to be placed in local alternative services. Children with serious emotional problems, such as depression, tend to be placed in residential programs. Children with overt, acting-out conduct problems are

most often placed in in-state residential programs. Students with high scores on the unstable family history factor are more likely to be served in either alternative services or in-state residential treatment.

Overall Relationships Among Variables: Child and Family Risk Factors, Placement, Services, and Cost. One might assume that both child and family risk factors, as well as placement and services, would drive cost. Yet the data present a different picture. There is a strong correlation between child and family risk factors. It is also clear that child—but not family—risk factors are important in determining which services are provided to the child. Yet, neither child/family risk factors nor the types of services provided appear to have much direct influence on cost. What is most influential in determining the overall cost of alternative/residential services is the type of placement—residential treatment vs. local alternative services.

CONCLUSIONS AND IMPLICATIONS

Indiana's Alternative/Residential Services continues to have a significant impact on restructuring services for students with the most severe disabilities. The initiative has clearly increased the availability of services provided locally. In the first five years of the program, the number of children in local placements has grown from near zero to over 150, representing over half of those in this study.

The strongest predictor of overall cost is whether the child is served in the local community or, much more expensively, in a residential treatment facility. Thus, strengthening the capacity of communities to provide services locally could help avoid the more expensive residential placements.

The flexibility of the state's funding mechanism and efforts to coordinate services in special education planning units have contributed to the dramatic shift to local services. Nevertheless, there may be further opportunities to collaborate and share costs with agencies outside the education system.

More and more Indiana communities are choosing to make the commitment necessary to support children with complex and difficult problems locally. By continuing to build local resources and beginning to build bridges between agencies, these communities can be supported in an enterprise that may, in the long-term, be highly cost effective for Indiana.

Chapter 1

INTRODUCTION

Appropriate treatment for children with the most severe disabilities has long been a concern for educators both nationally and at the state level. The problems of these children tend to be complex and multilayered, requiring the most extensive and expensive interventions. Beginning in 1970, Indiana's students with the most severe disabilities were served under a program commonly known as Indiana Rule S-5, which established a process funding placements in private residential facilities for students with problems too severe to be addressed by traditional, local-level services. A 1991 legislative amendment enabled a new initiative for alternative services to be added to the initial program. This initiative, Alternative/Residential Services, was designed to increase Indiana's capacity for serving its most disabled children by allowing funds that had previously been spent entirely on residential placements to be spent also on developing *systems of care* to support alternative, or wraparound, non-residential placements for these students in their local communities. (See Appendix A for a discussion of the system of care model.)

BACKGROUND

Both nationally and in Indiana, the majority of the most severe cases of disability are classified as emotionally handicapped. Students with emotional handicaps often are exposed to a variety of risk factors, such as poverty, community violence, family discord, inconsistent and inadequate parental discipline and monitoring, and family histories of mental illness. These children and youth exhibit a broad range of emotional and behavioral problems, including aggression, hyperactivity, severe academic underachievement, peer rejection, and delinquency. Because of the extensiveness of these problems and needs, some observers have suggested that emotional handicap should be viewed as a long-term disability—analogous to severe mental retardation—that may

require interventions and adaptations throughout the student's educational career (Wolf, Braukman, & Ramp, 1988).

Despite a general movement in special education toward integrating children with severe disabilities into less restrictive settings, available data show that a high proportion of students with emotional handicaps are placed in the most restrictive settings, particularly residential placements (Kauffman & Lloyd, 1992). Services in these settings can be extremely costly. For example, national data show that the cost to the state of a child's residential placement out of state is typically $90,000 or more per year (Epstein et al., 1993)—two to three times the cost of serving the child in the local community.

Even with the high cost of residential placements, their effectiveness in addressing the complex needs of these children is questionable. Gains made in those placements often do not transfer when a child returns to the home community, leaving the school, the family, and the community with the original problem (VanDenBerg, 1989). With little support for collaboration or using community-based services, children and families fall through the cracks of the social services system (Knitzer, 1982). By the mid to late 1980s, it became apparent that a new approach to service for the most severely disabled of youngsters was needed.

INDIANA'S ALTERNATIVE/RESIDENTIAL SERVICES

The growth and change in Indiana's services for its most severely disabled youngsters have mirrored national trends. As residential placements have become more costly, the state has drawn ideas from the national discussion to restructure its approach to services.

Federal and state laws and regulations require the provision of a free appropriate public education for all children with disabilities, regardless of the severity of the disability (Individuals with Disabilities Education Act, 1991; Indiana State Board of Education, 1995). In 1970, legislation commonly known as Indiana Rule S-5 set forth procedures that allowed the state to contract with in- or out-of-state private service providers to pay the excess costs of educating school children whose disabilities were so severe as to preclude achievement in a local setting. Rule S-5 required that the local school corporation consider establishing a local program before applying for a residential placement and also required that out-of-state placements be considered only in the absence of state-supported alternatives. In 1978, the Indiana General Assembly appropriated funds to give direct support to students served under Rule S-5, and both the

number and the cost of these placements have increased steadily since then. In 1979, for example, six Indiana students were served in private residential placements at an average cost of $15,000 per student. By 1990, 69 students were being served in such placements at an average cost to the state of approximately $54,000 per child.

During this time, there was little progress made toward developing programs to serve these students in local settings in Indiana. Two formal studies of S-5, conducted in 1982 and 1988, examined the growth in numbers and costs of out-of-state placements (cited in *Challenge of Change in Indiana,* 1990). Both the 1982 and 1988 reports noted that placements in residential programs were often made for other than educational reasons, such as the need for one-to-one assistance, or 24-hour care. The 1988 study concluded, "Despite the optimism of the 1982 study committee that a full continuum of services could be established in Indiana, it does not appear that major strides have been made in the past 6 years." (*Challenge of Change in Indiana,* 1990)

The 1987 Indiana General Assembly authorized the establishment of Local Coordinating Committees (LCCs), whose purpose was to review applications for residential placement outside of the children's home counties. Although the intent in forming LCCs was to increase the coordination of efforts for children being placed outside their home community, success was uneven, with particular difficulties in urban areas. In short, the growth of S-5 funding in the 1980s focused on out-of-state residential facilities and did not lead to the full development of Indiana resources.

New initiatives. A series of new Indiana initiatives has been generated in recent years that attempts to develop a more complete continuum of services for youngsters whose severe disabilities preclude their achieving in conventional settings (see Appendix A). In 1990, the IDOE Division of Special Education proposed a new mechanism that would allow funds to be spent on alternative services provided locally. In the report to the Indiana General Assembly *Challenge of Change in Indiana: Bringing Hoosier Children Home* (1990), the Division suggested a strategy to increase in-state service to severely disabled students by supporting individual plans developed at the local level. The 1991 General Assembly approved of the initiative and passed an amendment (Ind. Code § 20-1-6-19) allowing the IDOE to enter into contracts with the Departments of Mental Health, Public Welfare, and the State Board of Health to pay the excess cost of educating school-age children whose disabilities preclude their achieving in traditional local school settings. In 1992, with IDEA Part B funds, the Division funded a new regional position, Child Services Coordinator (CSC), that would coordinate services for individual children by working with local school corporations to improve the quality of local service plans,

develop networks among local service providers, and help monitor the implementation of the plans.

Effects of the new initiatives. Since the implementation of these initiatives, beginning with the creation of Alternative/Residential Services in 1991, the proportion of in-state and non-residential placements for children with severe disabilities has increased markedly. Communities have begun using resources that typically go to out-of-state residential placements to develop local alternative services. In 1989, for example, only 28% of these children were served in state, and, as recently as 1990, all of them were in residential placements. By 1994, 83% of the children in Alternative/Residential Services were served in state, and 41% were served under alternative services plans developed in local communities. Using local services has resulted in reduced costs and successful maintenance for children who were failing in much more expensive programs out of state. In addition, resources that formerly went into out-of-state services and institutions are now being spent to support job creation and build resources in Indiana. Finally, there has been a significant increase over the past five years in the number of education professionals trained to develop local services. As training in alternative services continues across the state, the number of individuals trained to develop alternative services plans is now nearly one per special education planning unit. In contrast, then, to earlier studies of this program, the present study finds good progress toward developing an Indiana-based continuum of services for children whose severe disabilities preclude achievement in traditional settings.

However, although the initiative has been very successful in shifting service patterns, fiscal concerns remain. For each child served locally, there is a considerable cost savings. The total cost continues to grow, however, as the number of enrolled children increases. Although alternative service local placements remain considerably less expensive than residential placements, the cost of both continues to accelerate.

Chapter 2

DESCRIPTION OF THE STUDY

To increase its understanding of the costs of alternative and residential services, the IDOE Division of Special Education contracted with the Indiana Education Policy Center in the fall of 1995 to conduct a fiscal analysis of those services for the 1996-97 contract year. The analysis focused on the types of children served, the placements and services they received, the costs of those placements and services, and the relationship of student and family characteristics to placement and cost. The study also looked at the extent to which program costs are shared by agencies other than the IDOE.

DATA COLLECTION

To facilitate evaluation of the Alternative/Residential Services process, Center researchers, with IDOE Division of Special Education staff members, designed a standard coding system to collect data on children and youth served by the program. Items for the coding system were drawn from a number of sources, including a literature review of child risk factors and services for severely disabled youngsters, national surveys for this population, and data collected previously for the Division. Preliminary drafts of the coding system were reviewed by a national consultant[1] and by Child Service Coordinators and special education directors from across the state.

In its final form (see Appendix B), the coding system collected information in three areas:

[1]Fred West, consultant at the Great Lakes Regional Resource Center, Columbus, Ohio.

- **Demographic and descriptive data** were gathered on students' age, gender, ethnic status, family and legal status, disability status, and current school and living arrangements and placements.

- **Child and family risk factors** were derived from a checklist format that listed family characteristics, such as suspected abuse or family mental illness, and child characteristics, such as aggression, depression, or self-abusive behavior.

- **Types and costs of specific services** being provided to children were obtained from applications for funding submitted to the IDOE, which made completion of the coding form a part of the alternative/residential services application process.

A full day of training on the coding system was provided to 75 service providers representing about two thirds of the school corporations in the state—including special education directors, child service coordinators, school psychologists, counselors, and social workers. To test the reliability of the coding system, Center research associates coded a sample of contracts for children and youth who were served in 1995-96. Of the 101 contracts coded, 50 were assessed for interrater reliability and were found to have high reliability—on average, above 90%.

Data were collected from the 1996-97 contracts of 299 children who, as of September 6, 1996, were funded through Alternative/Residential Services. It is important to note that this group does not represent all the students served in the 1996-97 contract year. As of January 1997, that count was 356 students. However, this study represents such a sizable proportion (84%) of the total group that it is unlikely additional cases would substantially alter the results.

RESEARCH QUESTIONS

Four general research questions guided the study:

- **What are the characteristics of children who are at risk of needing alternative/residential services?** What types disabilities or disorders characterize students served by alternative and residential services? What

are the factors that place a child at risk for alternative or residential services?

- **What types of placements and services are provided most often to alternative/residential students and what are their costs?** How many students are served through in-state alternative services? How many are served at in- and out-of-state residential facilities? What are the relative costs of alternative services and in- and out-of-state residential facilities? Which services are used most frequently and which are most expensive?

- **What factors contribute to the overall cost of serving children through alternative/residential services?** To what extent do selected child and family factors influence the types of placements and services provided and their cost? Which factors have the most influence on the overall cost of services?

- **How well are the costs for these services being shared by agencies other than the Indiana Department of Education?** To what extent are state and other agencies collaborating in supporting the costs of services for alternative/residential students?

Chapter 3

CHARACTERISTICS OF CHILDREN IN ALTERNATIVE/RESIDENTIAL SERVICES AND THEIR FAMILIES

The study examined characteristics of alternative/residential students to develop a profile of those children most likely to be served through Alternative/Residential Services and those most likely to need the more costly placements and services. The findings from these analyses are discussed below.

DEMOGRAPHICS

The study included the 299 students who, by September 6, 1996, had been funded for Alternative/Residential Services in the 1996-97 fiscal year. The sample is overwhelmingly male (80.9%). Unlike the findings of many studies of special education placements, there is no overrepresentation of minorities in this group: 79% (236) of the students are white, 11% (33) are African American, 1% (3) are Native American, and 0.7% (2) are Hispanic.[2] As Figure 3a shows, students' ages range from 3 to 22, with a mean age of 14.2. The grade level distribution of the group is depicted in Figure 3b. While the ages of students seem to be approximately normally distributed, the percentage of students by grade increases gradually until grade 9 and then drops off dramatically. In fact, the most frequently reported grade category for this sample is "ungraded" because these students are served in ungraded special education classrooms. [Note: Data will be presented in this report as figures rather than tables wherever possible. For exact values, readers may consult the tables found in Appendix C.]

[2]Due to rounding of numbers or missing data, percentage totals in this report will not necessarily equal 100%, and counts of students will not always equal 299.

FIGURE 3a
AGE DISTRIBUTION OF ALTERNATIVE/RESIDENTIAL STUDENTS

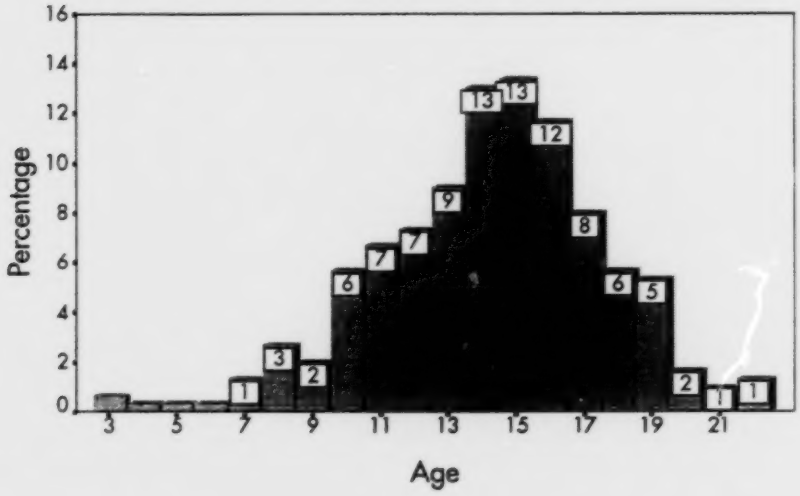
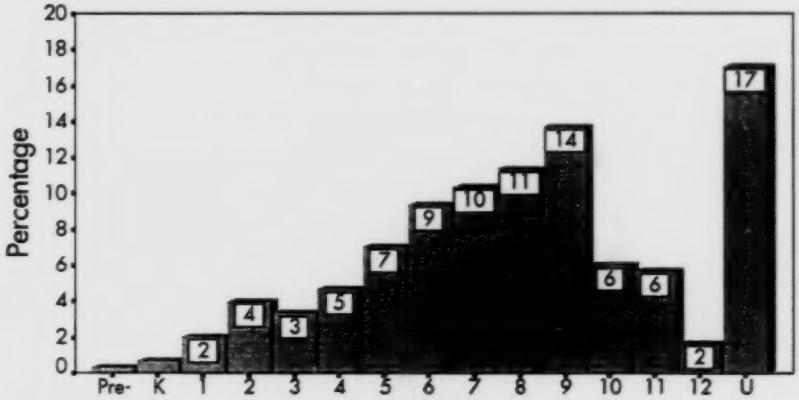


FIGURE 3b
GRADE DISTRIBUTION OF ALTERNATIVE/RESIDENTIAL STUDENTS



A majority of the students (58.5%) come from families where the parents are divorced or separated. More than half (51.8%) are living out of the home. Thirty-one (9%) were adjudicated as a Child in Need of Services[3] or as a Ward of the Court.

CHILD CHARACTERISTICS

To provide a more detailed picture of the characteristics of students placed in alternative/residential services, data were analyzed from two sources: (a) eligibility criteria and diagnostic information supplied on the applications for alternative/residential services and (b) child risk characteristics and problem behaviors check-marked on the coding forms for those students. These applications and coding sheets were completed by local service providers as part of the application process for alternative/residential services.

The most common disability categories (as defined by eligibility criteria for special education found in Article 7) are presented in Figure 3c. Like the two previous studies conducted for the IDOE Division of Special Education in 1982 and 1988, the present study finds that most alternative/residential children (64%) are classified as emotionally handicapped. In addition, the overwhelming majority of students (91.7%) have more than one disability. The most common clinical diagnoses (e.g., from the DSM-IV[4]) are presented in Figure 3d. Fully 69.6% of this group has received some form of clinical diagnosis, while 43.9% of the students have more than one DSM-IV diagnosis. The most common DSM-IV diagnoses for the students were conduct disorder/ oppositional disorder (19.9%), attention deficit disorder with or without hyperactivity (19%), depression (13.7%), autism (12.8%), and post-traumatic stress disorder (6.2%) (see Figure 3d).

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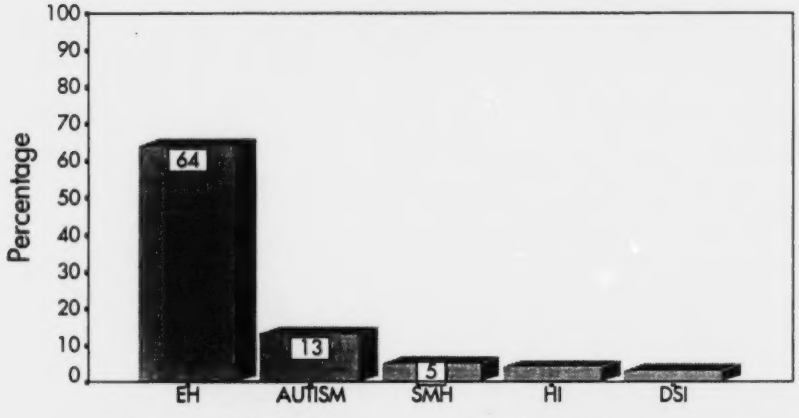
[3]A Child in Need of Services (CHINS) is defined as a child who has been adjudicated to be in need of services, typically based on a finding of abuse, neglect, or failure to provide care. As a result, the child may or may not be placed outside the home, and may or may not be made a Ward of the Court.

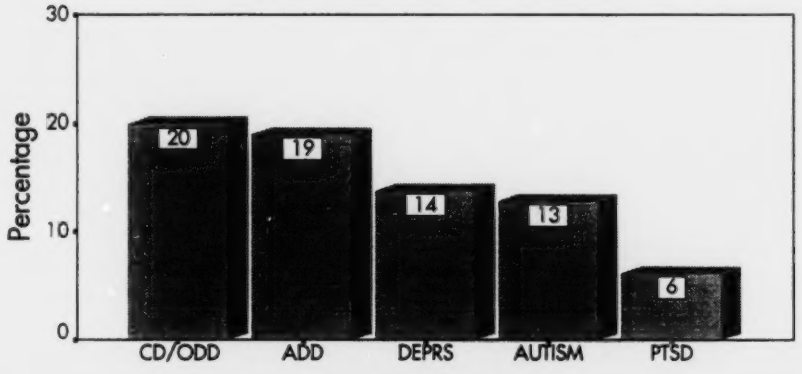
[4]*The Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition [DSM-IV] (1994) is published by the American Psychiatric Association (APA). It contains the APAs system of classifying mental disorders and the criteria and conditions considered by mental health professionals to diagnose mental disorders.

FIGURE 3c
MOST COMMON ARTICLE 7 ELIGIBILITY CRITERIA FOR ALTERNATIVE/RESIDENTIAL STUDENTS



EH=Emotionally Handicapped SMH=Severely Mentally Handicapped
HI=Hearing Impaired DSI=Dual Sensory Impaired

FIGURE 3d
MOST COMMON DSM-IV DIAGNOSES FOR ALTERNATIVE/RESIDENTIAL STUDENTS



CD/ODD=Conduct/Oppositional Disorders ADD=Attention Deficit Disorder
DEPRS=Depression PTSD=Post Traumatic Stress Disorder

Both the Article 7 eligibility data and the clinical diagnostic data indicate that the most common disabilities among this population are emotional and behavioral problems. Data on specific child risk and behavioral characteristics of alternative/residential students provided by school corporation representatives confirm this finding. (The data collection forms may be found in Appendix B.) **Child risk characteristics** were those incidents or behaviors (e.g., assaultive/violent behavior, suicide attempt) that have been shown to place a child at high risk, even if they occur at a low frequency. The category of **problem behavior** was designed to provide a broader picture of the types of inappropriate or maladaptive behavior that have been reported for the child; what may be most important for these behaviors is not simply their occurrence, but their overall pattern and frequency.

Distributions of the most common child risk characteristics are presented in Figure 3e. It is noteworthy that academic achievement below expected grade level was found to be the most common single child risk characteristic among the alternative/ residential students. This finding is consistent with recent research showing a strong link between academic achievement and behavior problems (Hinshaw, 1992), that is, as behavior problems increase in number and intensity, academic achievement declines.

FIGURE 3e
MOST COMMON CHILD RISK CHARACTERISTICS FOR ALTERNATIVE/RESIDENTIAL STUDENTS

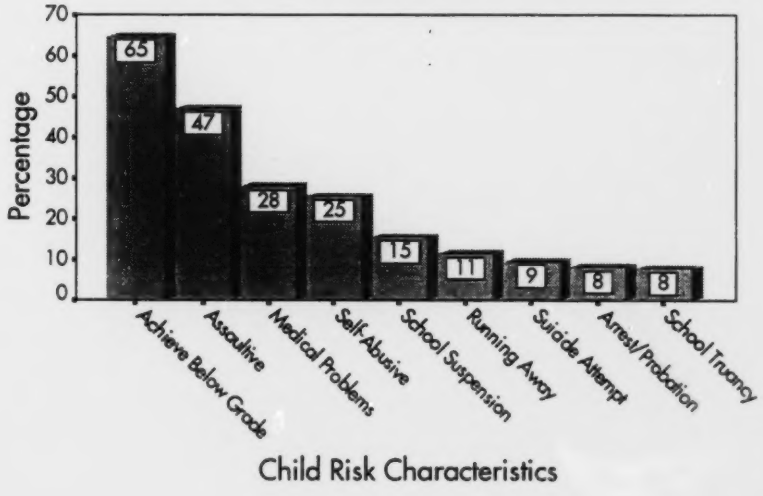
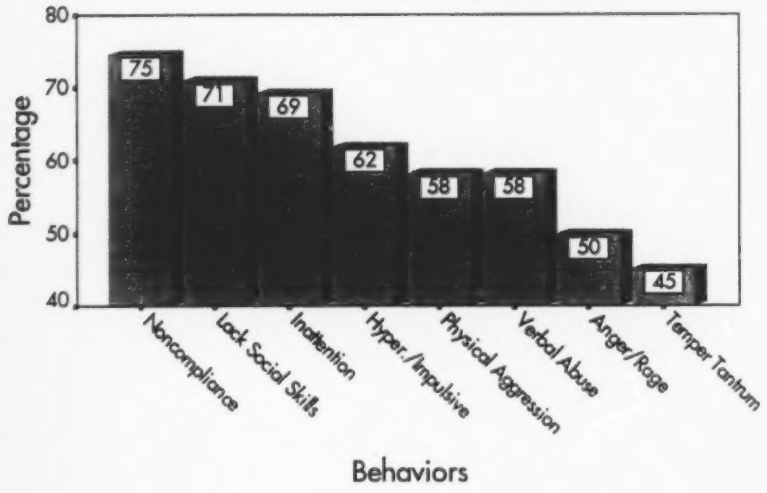


Figure 3f depicts the most commonly reported problem behaviors. The most common problem behaviors for students in this study are noncompliance, poor social skills, inattention/hyperactivity, and aggression. Thus, while other types of problems—such as medical, developmental, or emotional—are represented among this population, acting-out conduct remains the most typical problem for which these students are referred to alternative or residential services.

FIGURE 3f
MOST COMMON PROBLEM BEHAVIORS FOR ALTERNATIVE/RESIDENTIAL STUDENTS



Child risk factors. While individual child risk characteristics and problem behaviors provide important data, it also is useful to get a sense of the patterns of risk factors for this sample of students. *Principal component factor analysis* was used to derive seven clusters of characteristics and behaviors. Each cluster, termed a factor in this type of analysis, is a set of characteristics and behaviors, not a description of a child or a type of child. Indeed, a child may have characteristics or behaviors associated with several different factors. The factors, therefore, should be viewed as summaries of the risk characteristics and problem behaviors that are most likely to be exhibited by any member of the entire population of alternative/residential students. Each factor is a weighted sum of specific characteristics and behaviors listed on the application forms. The seven factors are listed below, in order of relative importance; that is, they are ranked by the relative strength of their validation by the analysis as categories.

- **Conduct Disorder/Acting-Out Behavior.** Problem behaviors in this factor include aggression, assault, verbal abuse, property destruction, and hyperactivity. Academic performance below expected grade level is also associated with this factor because of its relationship to student behavior.

- **Developmental Disability.** Behaviors in this factor are those that tend to be associated with a developmental disability, such as self-abuse, non-verbal, enuresis/encopresis, and perseveration.

- **Juvenile Delinquency.** Behaviors and characteristics typically associated with juvenile delinquency such as gang involvement, school truancy, arrest record, drug and alcohol abuse, and vandalism are included in this factor.

- **Conduct Disordered/Covert Behavior.** This factor is composed of more serious offenses, such as fire setting and bringing weapons to school. Also included are more covert offenses such as lying, stealing, and running away.

- **Medical Problems.** Seizures, eating and sleeping disorders, and other medical problems are included in this factor.

- **Serious Emotional Problems.** Some of the problems in this factor are suicide attempt, depression and withdrawal, and hallucinations.

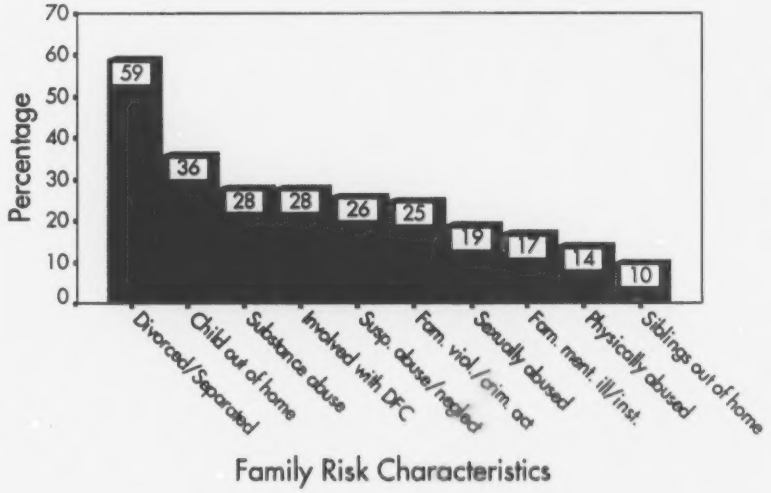
- **Sexual Problems.** History as a perpetrator of sexual offenses, inappropriate sexual behavior, and adjudication as a Child in Need of Services (CHINS) were the only three items that clustered together in this factor.

FAMILY CHARACTERISTICS

Certain family characteristics have been shown to have a strong correlation with the types of disabilities represented in this population (Webster-Stratton, 1993). For the present study, information on family risk characteristics was obtained from the coding

forms that were completed by service providers for each student. Figure 3g presents the most common family risk characteristics for the alternative/residential students in this study: parental divorce or separation (59%), being placed outside of the home (36%), substance abuse in the family (28%), and family involvement with the Division of Family and Children (DFC) of the Indiana Family and Social Services Administration.

FIGURE 3g
MOST COMMON FAMILY RISK CHARACTERISTICS FOR ALTERNATIVE/RESIDENTIAL STUDENTS



It is important to note that one cannot draw conclusions about the direction of causality simply from the presence of such characteristics. Divorce or separation may be a stressor that contributes to childhood disorder; on the other hand, the severity of a child's disorder may contribute to higher rates of parental divorce or separation. While certain risk characteristics—such as abuse—might be expected to be a cause of disorder, others—such as involvement with the DFC—are clearly the result, and not the cause, of child disorder or family difficulty.

Family risk factors. As with the child risk factors, principal component factor analysis was used to identify clusters of family risk characteristics that tend to be associated with one another. Three factors were derived. Again, note that these are not types of families, but broad pictures of family characteristics. The three factors are listed

below, as before, in order of relative importance; that is, they are ranked by the relative strength of their validation by the analysis as categories.

- **Dangerous/Abusive Home.** Items that represent a direct threat to the child's safety, such as suspected abuse and neglect, and sexual abuse, are included in this factor. Family involvement with the DFC and the child's placement outside of the home are associated with this factor.

- **Unstable Family History.** Items in this factor appear to pose a substantial risk, but may not necessarily directly threaten the immediate safety of the child. These include history of family substance abuse, divorced or separated parents, and history of family violence or criminal activity.

- **Mental Illness in Family Home.** This factor includes items such as a history of family mental illness or institutionalization and siblings being placed outside of the home.

Chapter 4

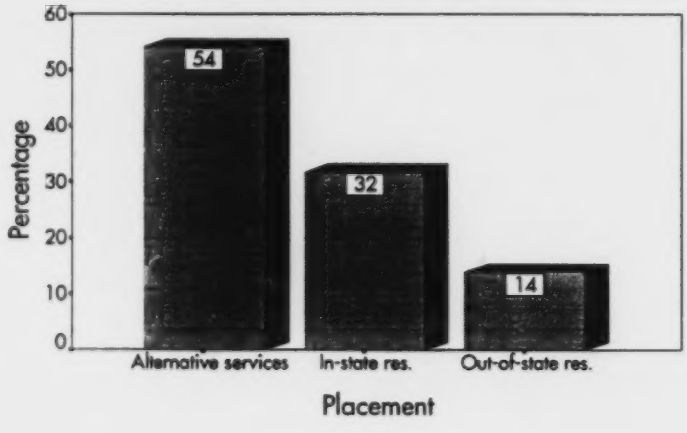
TYPES AND COSTS OF PLACEMENTS AND SERVICES

Historically, a high proportion of students with the most severe disabilities has been served in out-of-state residential treatment facilities. Data presented in this chapter address research questions concerning current student placements and the costs of those placements.

ALTERNATIVE AND RESIDENTIAL PLACEMENTS

Currently, more than half of the students in Alternative/Residential Services (54%) are placed in in-state alternative services (see Figure 4a). Thirty-two percent are placed in in-state residential treatment facilities, while 14% are placed in out-of-state

FIGURE 4a
LOCATION AND TYPE OF
ALTERNATIVE/RESIDENTIAL SERVICES



residential treatment facilities. These findings represent a significant increase over the last five years in the percentage of students who are served locally.

FIGURE 4b
COMPARISON OF ALTERNATIVE/RESIDENTIAL PLACEMENTS: 1988-96

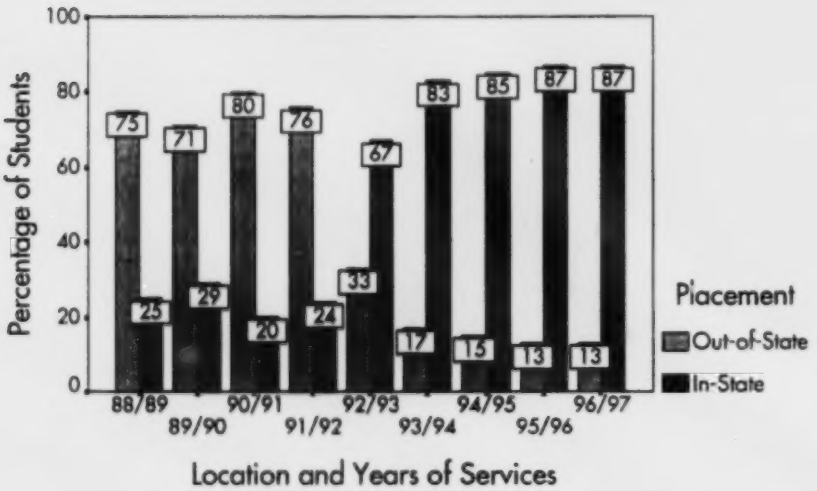


Figure 4b provides a breakdown of the percentages of children placed in alternative and/or residential services since 1988. This figure demonstrates the dramatic increase in the percentage of students served in state that has occurred with the addition of the alternative services component to residential services in 1991. The most significant shift occurred in the 1992-93 contract year, with 67% of the residential students served in state, as compared to 24% the previous year.

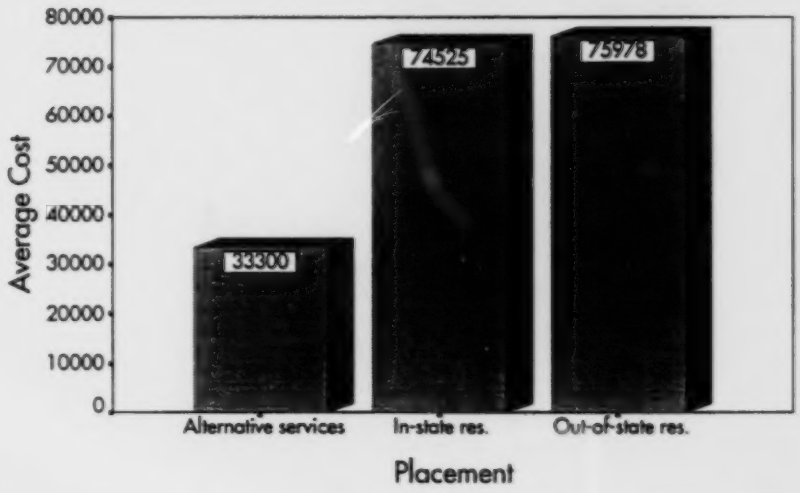
ALTERNATIVE AND RESIDENTIAL PLACEMENT COSTS

The costs for alternative and residential placements presented here are those borne by the State of Indiana through the IDOE Division of Special Education. These placement costs represent the total costs for services contracted with the Division by school

corporations[5] from across the state. Although most of the services are contracted on a yearly basis, some contracts may run as short as three months and others as long as fourteen months. There was no attempt to prorate these costs on a yearly basis. Costs of services paid for by local school corporations and other agencies are not included in the following discussion unless specifically noted.

The results of the present study indicate significant cost differences between alternative services provided in local communities and those provided through in- and out-of-state residential treatments. As shown in Figure 4c, the average cost of alternative services for each student for one contract is $33,300, less than half of the cost for either in- or out-of-state residential placements—$74,525 and $75,978 respectively. There is no significant difference between the cost of in-state and out-of-state residential placements.

FIGURE 4c
AVERAGE COST OF SERVICES PER CONTRACT
BY ALTERNATIVE/RESIDENTIAL PLACEMENT

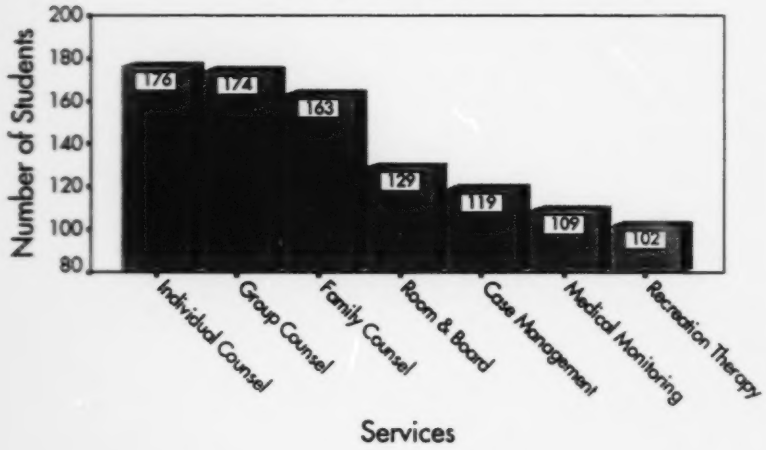


[5]The study sample represents over 125 school corporations, with an average of slightly more than two students per corporation in Alternative/Residential Services.

ALTERNATIVE AND RESIDENTIAL SERVICE TYPES AND COSTS

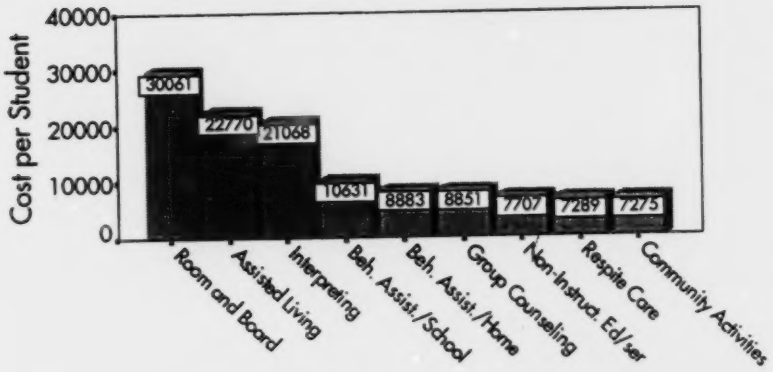
Types of services that are used most frequently by students in alternative and residential services are presented in Figure 4d. The total number of services exceeds the number of students because many students receive multiple services. The services used most often by these students are individual, group, and family counseling; room and board; and case management (for a complete list of services provided, see Table 4d in Appendix C).

FIGURE 4d
SERVICES MOST FREQUENTLY USED
BY ALTERNATIVE/RESIDENTIAL STUDENTS



The average costs for various services provided to alternative/residential students are shown in Figure 4e. Room and board is by far the most costly service, followed by assisted living and interpreting. As can be seen in Table 4e (in Appendix C), a large number of students—more than a third—use some of the most costly services, such as room and board and group counseling, and the high cost and frequent use of these services have a significant impact on the overall cost of the program. In contrast, two of the other most costly services—interpreting and assisted supported living—are used by only a small fraction of the students and have only a slight impact on overall programs costs.

FIGURE 4e
AVERAGE COST PER STUDENT FOR MOST EXPENSIVE ALTERNATIVE/RESIDENTIAL SERVICES



Beh. Assist./School=Behavioral Assistance/Training at School
Beh. Assist./Home=Behavioral Assistance/Training at Home
Non-Instruct. Ed/ser=Non-Instructional Education Services

Patterns of service. To provide a sense of which services tend to be associated with one another, a principal components factor analysis was performed on the service utilization data. The analysis derived seven service factors from the data. These factors should be interpreted as broad patterns of services that are provided to alternative/ residential students. They are listed in order of importance.

- **Noneducational Services.** This factor includes services that are not educational in nature, such as counseling, medical monitoring, assessment and evaluation, and room and board.

- **Related Services.** A number of services that are defined in Article 7 as *related services* cluster together. These include physical therapy, adaptive physical education, and occupational therapy.

- **Developmental Disabilities Services.** Services in this factor tend to be used more often by individuals with developmental or physical disabilities, such as assistive technology, challenge education, and community activities.

- **Home and Family Services.** This factor includes services such as crisis intervention, home-school liaison, and parent education.

- **School Consultation Services.** This factor is composed of items that are related to the student's school program, such as behavioral consultation and behavioral assistance at school.

- **Vocational Services.** The items contributing most strongly to this factor are job training/placement and support and rehabilitation counseling.

- **Community Services.** This factor includes items that indicate service in the local community, such as local transportation, assisted/supported living, and respite care.

Chapter 5

RELATIONSHIPS AMONG CHILD AND FAMILY CHARACTERISTICS, TYPE OF PLACEMENT, AND OVERALL COST

As well as examining the characteristics of alternative/residential students, their families, and the types and costs of placements and services, the study examined the relationships among these factors. This chapter presents the findings on these relationships. The statistical analyses in this chapter are based on student scores on the various child risk, family risk, and services factors discussed in previous chapters. These scores are related to the number of individual characteristics within each factor that apply to the particular student.

RELATIONSHIP OF CHILD AND FAMILY CHARACTERISTICS TO PLACEMENT AND COST

The analysis of variance (ANOVA) statistical procedure was used to compare child and family risk factors for students served in each of the three placement categories: alternative services, in-state residential programs, or out-of-state residential programs. Four of the seven child risk factors appear to have a significant influence on whether students are placed in alternative services or residential programs.

- Students with serious medical problems are placed more frequently in local alternative services than in in-state residential programs.

- Students with serious emotional problems, such as depression, are much more likely to be placed in in-state or out-of-state residential programs than in alternative services.

- Students with serious sexual problems are much more likely to be placed in in-state or out-of-state residential programs than in alternative services.

- Students with conduct disorder/acting-out problems are most frequently placed in in-state residential programs. They are served least frequently in out-of-state residential programs.

Two of the three family risk factors also influence where students are placed. Students placed in in-state residential treatment have higher average scores on the dangerous home factor than those in either out-of-state residential or alternative services. Students in out-of-state residential treatment have lower average scores on the unstable home factor than students served in either alternative services or in-state residential treatment.

RELATIONSHIP OF PLACEMENT TYPE TO SERVICES

The degree to which the type of placement (alternative, in-state residential, or out-of-state residential) influences the services provided was examined comparing the student scores for the seven service factors. Students in residential treatment facilities receive more noneducational services than students in local alternative services. Similarly, students in out-of-state residential facilities receive more related services than those in either in-state residential or alternative services placements. Students in alternative placements receive a greater array of services associated with developmental disabilities and home and family services than those in either in-state or out-of-state residential placements. Students in alternative placements are also more likely than those in in-state residential placements to receive school consultation services. There are no differences among the three types of placement in terms of vocational or community-based services.

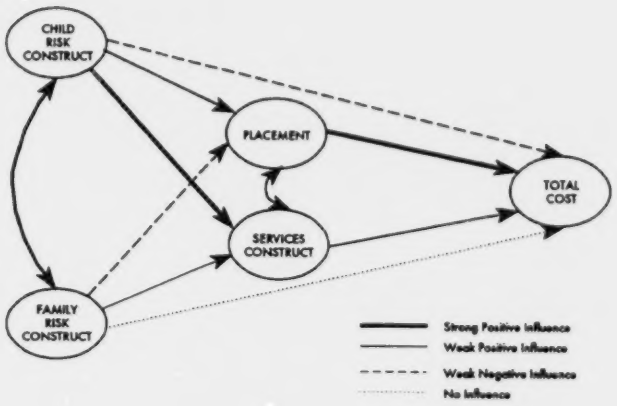
OVERALL RELATIONSHIPS AMONG THE VARIABLES

To determine the key factors that drive the overall costs of Alternative/Residential Services, relationships were examined among the child, family, placement, service, and

cost variables by applying the statistical method of *path analysis* to the data.[6] A complete discussion of the path analysis performed for this study can be found in Appendix D.

Figure 5 depicts a model of the factors that drive the overall cost of Alternative/Residential Services. As explained in Appendix D, the seven child risk factors, three family risk factors, and seven services factors were combined into three single measures or *constructs,* one describing child risk, one describing family risk, and one describing services. Of the three models tested for this study (also discussed in Appendix D), the model shown in Figure 5 provides the best description of the factors and their relationship to each other. The arrows indicate the direction of these relationships and, as described in the legend, the graphic character of the lines indicate the relative strengths of the relationships.

FIGURE 5
A MODEL OF THE INTERACTION OF RISK, PLACEMENT, SERVICES, AND COST



[6]Path analysis is a multivariate procedure based on multiple regression that can be used to test models describing relationships among a number of variables. By looking at several relationships simultaneously, path analysis helps identify which are the strongest and most important.

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One might assume that both child and family risk constructs, as well as placement and services, would drive cost. Yet the model presents a slightly different picture. Neither child risk, family risk, nor services appear to have much direct influence on the total cost of Alternative/Residential Services. In fact, the child risk construct has a weak negative direct influence, and the family risk construct has no direct influence at all. However, the child risk construct has a strong positive indirect influence on cost when mediated through placement. The family risk construct has little indirect influence on total cost of services. Similarly, while types of services and placements seem to be related to some degree, services seem to have little influence on costs. Rather, what is most influential in determining the overall cost is the type of placement. The cost of residential placement is over twice that of alternative services. It seems likely that this difference is most responsible for the strong contribution to overall cost that type of placement makes.

Chapter 6

ALTERNATIVE/RESIDENTIAL SERVICES AND SHARING COSTS

Even though the overwhelming majority of costs for Alternative/Residential Services is paid by the state—specifically through budget allocations to the IDOE Division of Special Education—a number of other agencies share the costs of certain services. This cost sharing occurs because a number of students served by the program have multiple and complex problems that often require attention from a variety of domains—including the medical, legal, and social service systems. As a result, one of the issues for this study was to determine the extent to which cost sharing occurs for services provided to alternative/residential students.

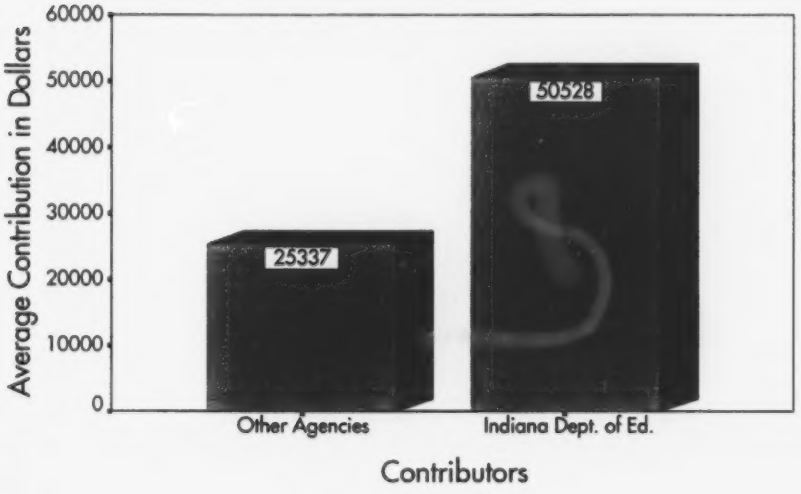
PROGRAM COSTS AND COST SHARING

School corporation representatives were asked to report which agencies shared in the costs of individual services and to estimate, to the best of their knowledge, how much those agencies contributed to the costs of services. The results should be regarded as tentative. Given the extent and complexity of some students' disabilities and the services they are provided, it is possible that some costs were shared by agencies in addition to those that were reported.

Agencies that were most frequently reported to share in the costs of services are Medicaid/Medicaid Rehabilitation Option; the Division of Families and Children; the Division of Disability, Aging, and Rehabilitative Services; and the Division of Mental Health and Family Preservation. The services most frequently paid for by other agencies are case management, individual counseling, family counseling, group counseling, and medical monitoring/treatment.

As shown in Figure 6a, in those cases where costs of alternative/residential services are shared by agencies other than the IDOE, the extent of that sharing can be fairly substantial, averaging slightly more than half of what is spent by the IDOE on an individual student.

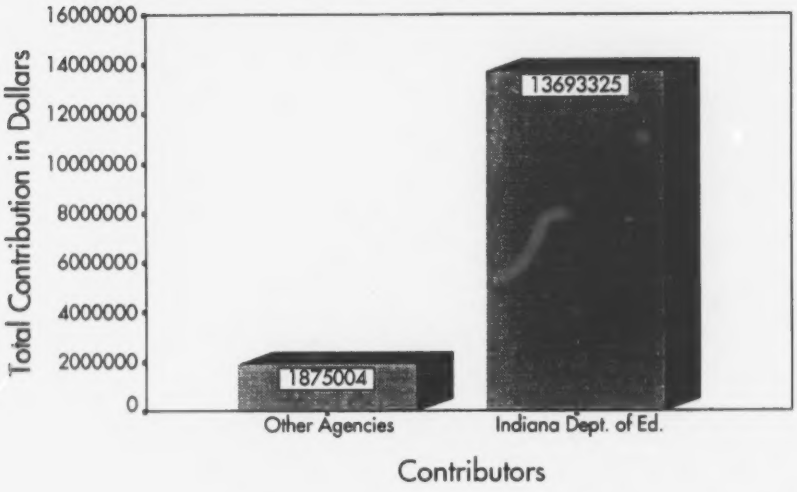
FIGURE 6a
AVERAGE CONTRIBUTIONS PER COST-SHARED STUDENT BY AGENCY



The frequency of such cost sharing, however, is relatively low. School corporation representatives reported that other agencies share costs of services for only 74 students—about 25% of the population in the study. Thus the total contribution of other agencies to services for alternative/residential students is low compared to the IDOE contribution (see Figure 6b).

The total cost to the IDOE for students funded for Alternative/Residential Services in 1996-97 was about $13.7 million, as of September 6, 1996. The total cost to other agencies for this same period was approximately $1.9 million, or about one seventh of the amount incurred by the IDOE. The reader is again cautioned to use these findings on cost sharing by other agencies with some reservation.

FIGURE 6b
TOTAL CONTRIBUTIONS FOR ALL STUDENTS BY AGENCY FOR ALTERNATIVE/RESIDENTIAL SERVICES



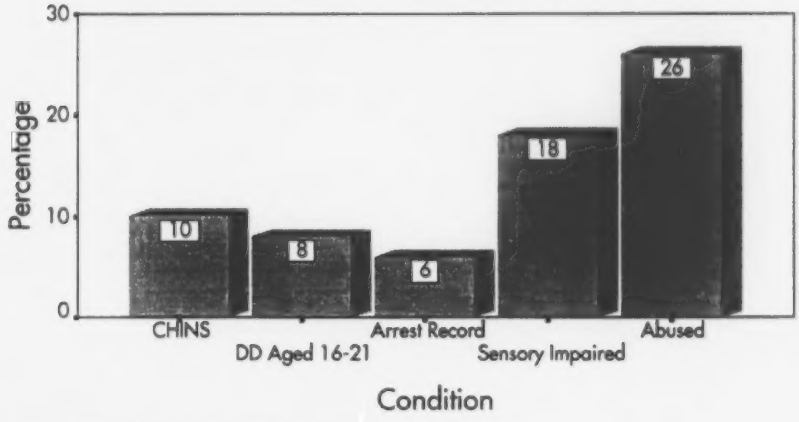
OTHER AGENCIES AND STUDENT ELIGIBILITY REQUIREMENTS

Students in alternative/residential services often have complex and challenging behaviors, and they often need services from a number of different agencies. For agencies to provide services, children and families must meet their eligibility requirements. While these requirements are necessary to define which students will receive services, eligibility requirements have also come under fire for creating obstacles to effective service (Melaville & Blank, 1991).

Figure 6c presents some of the conditions that make students eligible for service by other agencies and the percentage of students in this study who might thus qualify for services through those agencies. Of the students included in this study: (a) 10% have been adjudicated as a Child in Need of Services (CHINS) or made a Ward of the Court and, thus, are eligible for services through the Division of Family and Children (DFC); (b) 8% are developmentally disabled and over age 16 and, thus, may be eligible for services through the Division of Disability, Aging, and Rehabilitation Services (DDARS); (c) 6% have an arrest record, making them potentially eligible for services through the Department of Corrections; and (d) 18% of the population has either a hearing

impairment, a visual impairment, or a dual-sensory impairment, suggesting that they may be eligible for services under the Department of Health or the DDARS. Finally, over a fourth of this population (26%) have experienced physical or sexual abuse, suggesting that these children might be eligible for services from a number of agencies, including the DFC, the Division of Mental Health, or the Division of Family Services.

FIGURE 6c
PERCENTAGE OF ALTERNATIVE/RESIDENTIAL STUDENTS POTENTIALLY ELIGIBLE FOR OTHER SERVICES

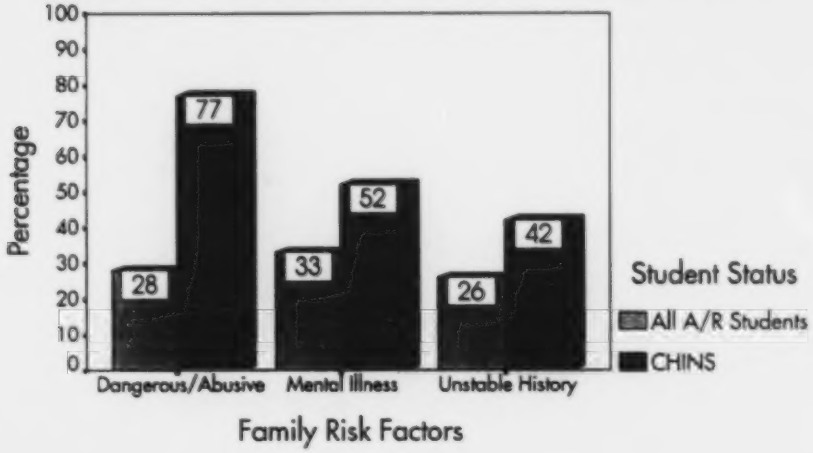


DD = Developmentally Disabled
CHINS = Child in Need of Services

CHINS RISK FACTORS, SERVICES, AND PLACEMENT

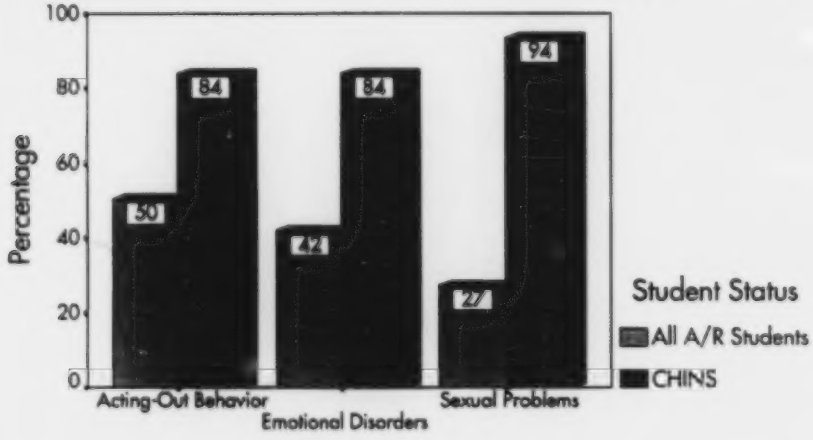
In a population already characterized by the presence of a number of fairly significant risk characteristics, students with multiple problems appear to be at an even greater risk. For example, students who were identified as Children in Need of Services (CHINS) are compared with other alternative/residential students in Figures 6d and 6e. Students were classified as to whether their factor score was above the mean on each of the seven child risk factors and the three family risk factors. For this high-risk population, the figures compare the incidence of individual risk factors in the CHINS group in the study with the incidence of those factors in the remainder of the alternative/residential group in the study.

FIGURE 6d
PERCENTAGE OF ALTERNATIVE/RESIDENTIAL STUDENTS AND CHINS ABOVE THE MEAN ON FAMILY RISK FACTOR SCORES



Family Risk Factors

FIGURE 6e
PERCENTAGE OF ALTERNATIVE/RESIDENTIAL STUDENTS AND CHINS ABOVE THE MEAN ON CHILD RISK FACTOR SCORES

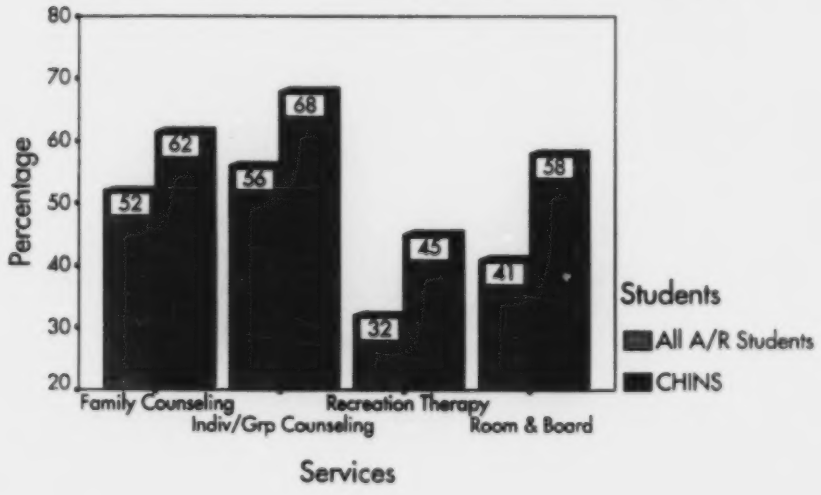


Child Risk Factors

As Figure 6d illustrates, alternative/residential students who have been adjudicated as CHINS are at a significantly higher risk than the rest of the students of being in a dangerous or abusive home or of having mental illness in the family. There is no significant difference between CHINS cases and the remained of the alternative/ residential students in terms of the degree of general family instability.

Using ANOVA, child risk factor scores for CHINS students were compared to the scores of other alternative/residential students. The scores differ significantly on four of the seven factors; there are no statistically significant differences for the remaining three child risk factors. Figure 6e presents incidence data for CHINS cases and other alternative/residential students on three of the child risk factors for which there is a significant difference. Students who are referred as CHINS are at a significantly greater risk than other alternative/residential students for having acting-out behavior problems, emotional disorders, and sexual problems. Interestingly, CHINS students have lower scores on average than the rest of the students on the covert behavior factor.

FIGURE 6f
USE OF THE FOUR MOST FREQUENT SERVICES BY CHINS AND ALL ALTERNATIVE/RESIDENTIAL STUDENTS



Because alternative/residential students who have been classified as CHINS are at greater risk of having more complex disorders, it is not surprising that they also require and receive a larger number of services than the rest of the population studied. Figure 6f identifies the most widely used services and compares the percentage of CHINS students who receive those services to other alternative/residential students in the study. As expected, a significantly greater percentage of the CHINS students receive services. Indeed, students identified as CHINS are significantly more likely to be served in residential placement, especially in-state residential treatment, than other students served through Alternative/Residential Services.

Chapter 7

CONCLUSIONS AND IMPLICATIONS

The data analyzed in this study suggest that Indiana's Alternative/Residential Services funding and process have had a significant impact on restructuring services to the state's most severely disabled students. In contrast to earlier reports that expressed frustration about the inability to establish an effective continuum of services in Indiana, more recent data indicate that the Challenge of Change initiative, establishing the Alternative Services option, has had a dramatic impact on services for this population. Out-of-state residential placement, the predominant mode of service only five years ago, is now used in only a small minority of cases.

Several key findings are worth repeating. The primary problems of the majority of students supported in these services are emotional and behavioral—in particular acting-out conduct problems. Analysis of expenditures indicates that the cost of residential treatment continues to be over twice as high as the cost of alternative, or wraparound, service in the community. The cost differential between residential care and community care is primarily due to obvious expenses such as room and board, rather than other services. As expected, the students served by the program are distinguished by a number of child and family risk factors; these do appear to have some influence on the type of placement that the student receives.

Yet neither child characteristics nor the types of service provided are very influential in determining the cost of service. The strongest predictor of total cost is the decision about whether to serve a child in the local community or in residential treatment. Continued attention to strengthening resources at the local level is thus likely to be cost-effective. Strengthening local capability could enable local communities to provide services that would allow them to avoid more expensive residential placements. Further analyses in the coming year will continue the search for factors that drive up costs, as well as cost-effective alternatives.

A number of components have been consistently identified in national studies as important in a system of services for these students (see Appendix A); these include flexible funding, service coordination, interagency collaboration, and unconditional care. Flexible funding, the mechanism for making funds available for supporting services in the local community, is a clear strength of the process. In the five years since legislative amendment allowed the IDOE to begin contracting for local services, the number of children provided services other than residential treatment has grown from near zero to over 150 and now represents about half of the total of this population. This shift in service must be regarded as a remarkable achievement, a testament to the effectiveness of the flexible funding mechanism in the state.

Another component of individualized services in a system of care, service coordination, also appears to be well represented in the Child Service Coordinator approach used in the state. Child Service Coordinators have acted as advocates for a more community-based approach, and have helped local communities better identify and focus available resources for children in Alternative/Residential Services. It seems likely that part of the growth of local services must be credited to the efforts of these trained individuals. Future analyses will explore the impact differential of care coordination for alternative and residential services, and whether that coordination has an effect on the types or costs of services provided. However, as the limited frequency of cost sharing by other agencies suggests, further opportunities for coordination may exist and should be explored by Child Service Coordinators and special education directors.

In contrast to the strengths in flexible funding and service coordination, the component of interagency collaboration, particularly in funding, continues to be problematic in the overall program. When other agencies contribute to alternative services or residential programs, their financial contribution can be substantial, averaging up to half the contribution made by IDOE. Yet a contribution by other agencies to Alternative/Residential Services was documented in fewer than a quarter of the cases. With an efficient funding mechanism and a mandate for educational service, combined with a lack of contribution from other agencies, it is not surprising that costs borne by the IDOE continue to grow. It is not unreasonable to ask whether the education system should continue to bear the vast majority of costs for children whose primary difficulties—abuse, prior arrest, placement outside of the home as CHINS—are often noneducational in nature.

It stands to reason that a continuing investment in Indiana's most severely disabled students will prove to be cost effective for the state. Left untreated, the extreme problems exhibited by these children and youth will almost certainly result in costly

correctional or long-term residential placement for a sizable percentage. More and more Indiana communities are choosing to make the commitment necessary to support children with these complex and difficult problems locally. By continuing to build local resources, and beginning to build effective bridges with other agencies, Alternative/Residential Services is proving to be an effective approach to serving this most vulnerable segment of Indiana's citizens.

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Appendices

Appendix A: System of Care

Appendix B: Data Collection Forms

Appendix C: Tables

Appendix D: Models of Cost

Appendix A

SYSTEM OF CARE
National and State Trends in Service Delivery

In the 1980's, it became increasingly apparent that the services traditionally offered the most severely disturbed children and youth were simply not sufficient to meet the complex needs of this population. Parents have reported receiving little assistance in finding services, and little support for using community-based services (Knitzer, 1982); agencies have duplicated services, or provided disjointed services. As a result, horror stories of children who "fall through the cracks" have become distressingly common. Such children are also at higher risk for being served in out-of-state residential placement, at costs that often exceed $90,000 a year (Skiba, Polsgrove, & Nasstrom, 1996). Despite these higher costs, gains made in out-of-state placements often do not transfer when a child returned to their home community (VanDenBerg, 1989). By the mid to late 1980's, it became apparent that a new approach to service for the most severely disabled of youngsters was necessary.

In response to these concerns, a new model of service, *system of care*, was proposed by the Children and Adolescent Service System Program (CASSP) in 1984. A system of care represents:

> a comprehensive spectrum of mental health and other necessary services which are organized into a coordinated network to meet the multiple and changing needs of children and adolescents with severe emotional disturbances and their families. (Stroul and Friedman, 1986, p. 3)

The concept recognizes that the needs of children and families with multiple problems are too complex to be met by any single agency. Rather, a collaborative approach, cutting across agency boundaries, is necessary.

A key feature of the system of care is individualized services, emphasizing the concept of *wraparound*. Rather than expending local and state resources on expensive residential placements, those resources are expended on local services, which are "wrapped around" the child and family in an effort to successfully maintain the child in the local community (Behar, 1985).

There are several features that have been identified as critical to successful wraparound programming. The first is *flexible funding*; money that would otherwise be spent on out-of-state residential treatment or on categorical services is used instead to support a variety of community services. The second important feature is *interagency collaboration*, in which community agencies, such as education, mental health, and corrections, work together to provide services for children and their families. A third important feature is *service coordination*. In order to ensure efficient and effective services, a services coordinator pulls needed services together, and acts as an advocate for individual students and their families. Finally, successful wraparound programs emphasize the value of *unconditional care*. Programs that use an individualized service approach make a commitment to serve children, regardless of the severity of the child's behavior.

System of Care Results. Since their inception, system of care programs have successfully served a greater proportion of students with severe difficulties in their local community. A number of impressive outcomes for youth served by a system of care have been documented, including behavioral and academic improvement, decreased juvenile delinquency, and increased parent satisfaction (Stroul, 1993). Among the most extensive and widely-known of these programs is the Alaska Youth Initiative (VanDenBerg, 1989). Founded in 1985, the program had as its goals returning children and youth placed out-of-state, limiting further out-of-state placements, and providing individualized case planning, monitoring, program development, and funding for youth and their families. Through such individualized planning, the AYI succeeded in reducing out-of-state placements from a range of 40 to 90 youth in the early 80s to zero by the fourth year of the program; cost savings for the program averaged $32,000 per child. While graduates of such programs are not always trouble free, youth who were formerly institutionalized have succeeded in foster care, re-entered regular education classes, completed GED's, or transitioned to apartment living (Burchard, Burchard, Sewall, and VanDenBerg, 1993). Short term savings aside, the savings to society when these youth succeed in the community, rather than being housed long-term in treatment or correctional institutions, must be regarded as substantial.

New Directions: Implementing a System of Care Approach in Indiana

Early attempts to serve Indiana's students with the most severe disabilities focused primarily on out-of-state residential placement; two earlier studies noted that this focus failed to result in a viable continuum of services for these students in Indiana (IDOE Division of Special Education, 1990). In response to this difficulty, several new initiatives were begun in the early 1990's. These initiatives all attempted to take the promising findings referred to above at the national level, and apply them to the improvement of services in Indiana. Only four years after the concepts were introduced at the national level, the State of Indiana Department of Education began to move toward the implementation of three key features of the system of care: flexible funding, service coordination, and interagency collaboration.

Flexible Funding: The Alternative Services Program. In 1990, the Division of Special Education proposed a new funding option, that would allow Indiana funds to be spent on services provided by local community agencies. In a report to the Legislature entitled *Challenge of Change in Indiana: Bringing Hoosier Children Home*, the Division suggested an alternative strategy to serve more severely disabled students in-state by supporting individual plans developed and coordinated at the local level. The 1990 State Legislature approved the initiative, allowing the Department of Education to enter into contracts with the Department of Mental Health, the Department of Mental Health, the Department of Public Welfare, or the State Board of Health to pay the excess cost of educating school-age children whose disabilities preclude achievement in traditional local school settings. The goal of the new program was to serve a greater proportion of these students in Indiana, either in public residential facilities, or through local wraparound programs. Spending dollars that would otherwise go toward out-of-state private placements on local services meant an increase in Indiana funds going toward local Indiana resources and jobs, with the hoped for goal of building local infrastructure for serving such children.

Service Coordination: The Child Service Coordinators. As noted previously, a key component to the success of system of care programs is the provision of a mechanism to coordinate services for individual children. In 1992, the Division of Special Education used special education funds from the federal government to create a new regional position, the Child Services Coordinator (CSC). In its first year, the program supported seven CSCs, a number that grew to 17 by the third year of the grant. The CSCs have

worked with local school corporations to improve the quality of local treatment plans, develop a network among local service providers, and help monitor the implementation of Alternative/Residential Service plans.

Interagency Collaboration: Statewide Efforts. As noted, interagency collaboration, agencies pooling their efforts and resources for children and families, is a central feature of the system of care model. Statewide initiatives, in partnership with local school districts and teacher training institutions, have helped create a more favorable climate for collaboration for students with emotional handicaps. From 1991 to 1995, the Division of Special Education, the Institute for the Study of Developmental Disabilities, and two school corporations (Indianapolis Public Schools, and the Hancock/South Madison Joint Services) collaborated on a state-wide systems change effort, Project CONNECT (Skiba et. al, 1996). Through a needs analysis, a series of statewide forums, and the development of model programs in the participating districts, Project CONNECT was able to create a climate favorable to the growth of local alternative services for multi-needs children and youth. Recently, local consultants have collaborated with a national organization, the Institute for Emotional and Behavioral Disorders, to provide training in wraparound services for local districts throughout Indiana.

Appendix A References

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Appendix B

DATA COLLECTION FORMS

Alternative/Residential Services Finance Study
Basic Data Form

Please provide all requested data, referring when necessary to the instruction sheet for this form.

Demographic Data	
1. School Corporation No.	
2. Length of Contract in months. **(Division use only)**	
3. Social Security No. (SSN)	
4. Date of Birth	
5. Grade (State current or "U" for ungraded)	
6. Gender	☐ a Female ☐ b Male
7. Ethnicity (Check one)	☐ a White American ☐ b American Indian ☐ c African American ☐ d Asian American ☐ e Hispanic ☐ f Pacific Islander ☐ g Other
8. Guardianship and other legal involvement (check all that apply)	☐ a Emancipated adult ☐ b Ward of the state ☐ c CASA appointed ☐ d Juvenile court ☐ e Guardian ad litem appointed ☐ f Both biological parents ☐ g Biological mother alone ☐ h Biological father alone ☐ i Both adoptive parents ☐ j Adoptive mother alone ☐ k Adoptive father alone ☐ l Other relative

Disability Variables	
9. **Primary** Article 7 disability label *	
10. **Secondary** Article 7 disability label *	
11. **Primary** Clinical Diagnosis code *	
12. **Secondary** Clinical Diagnosis code*	
13. **Current** Article 7 Placement code*	
14. **Contracted** Placement code * **(Division use only)**	

Service Options (Check one only)	
33. Alternative Services	
34. State Operated/Private Residential Facility Placement	

Refer to Codes for Alternative/Residential Services Application

Location Check all that apply)	Past (a)	Present (b)	Contracted (Division use only) (c)
15. In-State			
16. Out-of-State			
Living Arrangements	**Past (Provide no. of times) (a)**	**Present Placement (check one) (b)**	**Contracted (Division use only) (c)**
17. Living at Home			
18. Foster Home			
19. Therapeutic Foster Care			
20. Alternative Family			
21. Group Home			
22. Private Psychiatric Hospital			
23. Private Residential Treatment Facility			
24. Juvenile Detention Center			
25. State-operated Residential Facility			
26. Other (specify)			

School (Estimate percentage for each)	Present (a)	Contracted (Division Use Only) (b)
27. Public School		
28. Private School		
29. Home Bound		
30. Day Treatment		
31. Residential		
32. Other (specify)		

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Family Risk Factors (Check all that apply)	
35. Family Involvement with Division of Family & Children	
36. Parents Divorced/Separated	
37. Child Placed Out of Home	
38. Siblings Placed Out of Home	
39. History of Family Mental Illness/Institutionalized	
40. History of Family Violence/Criminal Activity	
41. History of Family Substance Abuse	

Other External Risk Factors (Include reported but not substantiated. Check all that apply)	
42. Suspected Abuse/Neglect	
43. Physically Abused	
44. Sexually Abused	

Child Risk Factors (Check all that apply)	Past (a)	Present (b)
45. Assaultive/Violent		
46. Achievement Below Expected Grade Level		
47. School Truancy		
48. Drug/Alcohol Abuse		
49. School Suspension/Expulsion		
50. Arrest/Juvenile Court/Probation		
51. Running Away		
52. Gang Involvement		
53. Medical Problems		
54. Arrested before Age 13		
55. Child in Need of Services		
56. Sexual Perpetrator		
57. Self-abusive or Harmful to Self		
58. Suicide Attempt or Ideation		
59. Fire Setting		
60. Vandalism		

Child Social Security No._____

Behaviors (Check all that apply)	Past (a)	Present (b)
61. Physical Aggression (i.e., hitting, biting, kicking, spitting)		
62. Verbal Abuse/Profanity/Threats		
63. Running/Hiding		
64. Inappropriate Sexual Behavior		
65. Property Destruction		
66. Noncompliance/Defiance		
67. Temper Tantrum		
68. Inattention/Poor Concentration		
69. Hyperactive/Impulsive		
70. Intermittent Explosive		
71. Stealing		
72. Weapon in School		
73. Depressed/Withdrawn		
74. Obsessive Compulsive		
75. Lying		
76. Anger/Rage		
77. Lacks Social Skills		
78. Hallucination		
79. Perseverative /Echolalia		
80. Self-stimulation		
81. Self Abuse		
82. Choking on Food		
83. Screaming		
84. Not Toilet Trained		
85. Pica		
86. Enuresis/Encopresis		
87. Non-verbal		
88. Seizures		
89. Eating Disorder		
90. Sleep Disorder		

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Alternative/Residential Services Finance Study
Financial Data Form (1996-1997 Contract Year)

Child SSN# _____

Please provide all requested data, referring when necessary to the instruction sheet for this form.

Service Provided	School Corporation Funds (a)	Other Agency Funds		Requested State Funds (d)	Service Provider(s) Code(s)* (e)	Approved State Funds (Division Use Only) (f)
		Agency (b)	Ag. Code* (c)			
Living Costs						
1. Assisted/supported living						
2. Community activities (include recreational & leisure)						
3. Room and board						
Educational and Related Services						
4. Special Education Instruction						
5. Non-instructional Educational Services						
6. Adapted/adaptive Physical Education						
7. Assistive technology/services						
8. Challenge Education						
9. Habilitation training/Visually Impaired						
10. Physical Therapy						
11. Occupational Therapy						
12. Speech and Language Therapy						
13. Recreation/Activity Therapy						
14. Interpreting						
15. Medical monitoring/treatment						
16. Medical evaluation						
Psychological/Behavioral Services						
17. Behavioral consultation, family						
18. Behavioral consultation, school						
19. Behavioral assistance/training at home						
20. Behavioral assistance/training at school						

* *Refer to Codes for Alternative/Residential Services Application*

BEST COPY AVAILABLE

Child SSN # _____

Service Provided	School Corporation Funds (a)	Other Agency Funds		Requested State Funds (d)	Service Provider (s) Code(s)* (e)	Approved State Funds (Division Use Only) (f)
		Agency (b)	Code (c)			
21. *Group* counseling/psychotherapy						
22. *Family* counseling/psychotherapy						
23. *Individual* counseling/psychotherapy						
24. Crisis intervention						
25. Assessment & Evaluation						
Home & Family Services						
For Home-Based Services, please see instruction sheet						
26. Home-school liaison						
27. Parent education						
28. Respite care						
29. Case management						
Vocational Services						
30. Community-based instruction						
31. Job training/placement & support						
32. Rehabilitation counseling						
33. Vocational education/training						
Transportation						
34. Local transportation						
35. Long distance transportation						
Other						
36. Other (Please specify)						
TOTAL EXPENDITURE						

*Refer to Codes for Alternative/Residential Services Application

BEST COPY AVAILABLE

Alternative/Residential Services Finance Study
Financial Data Form Instruction Sheet
1996 - 97 Contract Year

Please note: When one individual is performing two or more of these services (for example, an aide who is serving as both a bus aide & providing classroom assistance), please estimate the relative proportion of funds in both categories in proportion to the time spent.

Living Costs	
1. Assisted/supported living	Services which support an individual in a home-setting such as personal assistance, home-making, etc.
2. Community activities	Includes recreational & leisure services. ***Excludes*** vocational/instructional activities included under item (33).
3. Room and board	Provide total cost.
Educational/Related Services	
4. Special Education Instruction	Includes an estimate of all expenses associated with special education instruction, with the ***exception*** of assessment & evaluation costs (see item 25) & community-based instruction (see item 30).
5. Non-instructional Education Services	Includes IEP monitoring and other non-instructional costs associated with special education (see general instructions).
6. Adapted/adaptive physical education	Specially designed physical education programming adapted to meet the needs of special education students.
7. Assistive technology/services	Devices/technology/services used to improve/maintain functional capabilities of students with disabilities. [Article 7 Rule 3 Sec. 5.5].
8. Challenge Education	Experiential learning in an active environment.
9. Habilitation training /Visually Impaired .	Includes orientation and mobility. Utilize only if a provider with specialized skills is necessary - otherwise include cost under item (5).
10. Physical Therapy	Services provided by a licensed/certified Physical Therapist. [Article 7 Rule 13 Sec. 5 (n)]
11. Occupational Therapy	Services provided by a certified Occupational Therapist/certified Occupational Therapy Assistant under the supervision of a certified Therapist. [Article 7 Rule 13 Sec. 5 (j)].
12. Speech and Language Therapy	Services provided by a licensed Speech-Language Pathologist for communication disorder. [Article 7 Rule 11 Sec. 2].
13. Recreation/Activity Therapy	Includes art, dance, music, and play therapy.
14. Interpreting	Includes communication & facilitation.
15. Medical monitoring/treatment	Includes nursing services, medication management, school health services. Includes medical treatment.
16. Medical evaluation	Medical services for the purpose of diagnosis and evaluation. [Article 7 Rule 13 Sec. 5 (h)]. Include psychiatric evaluation under this category.

Financial Data Instruction Sheet

Psychological/Behavioral Services	
17. Behavioral consultation, family	Services to ***develop*** and/or ***monitor*** a behavioral program and train personnel & family members.
18. Behavioral consultation, school	
19. Behavioral assistance/training at home	Services provided to ***implement*** a behavioral program.
20. Behavioral assistance/training at school	
21. *Group* counseling/psychotherapy	Any counseling or psychotherapeutic treatment of the student in a ***group setting***, regardless of theoretical approach.
22. *Family* counseling/psychotherapy	Any counseling or psychotherapeutic treatment directed toward ***family***, regardless of theoretical approach.
23. *Individual* counseling/psychotherapy	Any counseling or psychotherapeutic treatment of the student conducted on an ***individual*** basis, regardless of theoretical approach.
24. Crisis intervention	Services provided to assist the individual, school, or family in crisis situations.
25. Assessment & Evaluation	Cost associated with diagnostic services related to special education referral & eligibility determination. Includes cost of audiological assessment. Medical psychiatric evaluation should be included under item (16).
Home & Family Services	
*For Home-Based Services, itemize or prorate these costs under specified areas such as parent education, behavioral assistance, case-management, etc. Do **not** enter this as a total cost.*	
26. Home-school liaison	Services provided to facilitate communication and coordination of program between home and school.
27. Parent education	Services provided to increase parental skill or competency in behavior management, parenting, or living skills.
28. Respite care	Services provided to support parents through relief or respite.
29. Case management	Service coordination and support. *Please include all providers.*
Vocational Services	
30. Community-based instruction	Itemize or prorate this cost separate from special education instruction of item (5). Include transportation cost under item (34).
31. Job training/placement & support	Job training on site in the community (e.g., at a local business). Includes job coach services.
32. Rehabilitation counseling	Therapeutic or educational interventions used to facilitate functional living.
33. Vocational education/training	Instruction provided in settings such as public school/vocational school/workshop.
Transportation	
34. Local transportation	Any transportation needed to support local services or alternative services. Includes cost of bus aide.
35. Long distance transportation	Any transportation needed to support placement in out-of-community or out-of-state residential placement. Includes all supported travel to and from the facility.
Other	
36. Other (Please specify)	*Don't use this unless you absolutely have to.*

Appendix C

TABLES

The tables on the following pages are intended to be used in conjunction with the figures in the report. For example, Table 3a corresponds to Figure 3a, found in Chapter 3 on page 10. Please note that not all figures have corresponding tables in this appendix.

TABLE 3a
AGE DISTRIBUTION OF
ALTERNATIVE/RESIDENTIAL STUDENTS

Age	Frequency	Percentage
3	2	0.7%
4	1	0.3%
5	1	0.3%
6	1	0.3%
7	4	1.3%
8	8	2.7%
9	6	2.0%
10	17	5.7%
11	20	6.7%
12	22	7.4%
13	27	9.0%
14	39	13.0%
15	40	13.4%
16	35	11.7%
17	24	8.0%
18	17	5.7%
19	16	5.4%
20	5	1.7%
21	3	1.0%
22	4	1.3%

TABLE 3b
GRADE DISTRIBUTION OF
ALTERNATIVE/RESIDENTIAL STUDENTS

Grade	Frequency	Percentage
1. Ungraded	51	17.1%
2. Preschool	1	0.3%
3. Kindergarten	2	0.7%
4. First grade	6	2.0%
5. Second grade	12	4.0%
6. Third grade	10	3.3%
7. Fourth grade	14	4.7%
8. Fifth grade	21	7.0%
9. Sixth grade	28	9.3%
10. Seventh grade	31	10.3%
11. Eighth grade	34	11.4%
12. Ninth grade	41	13.7%
13. Tenth grade	18	6.0%
14. Eleventh grade	17	5.7%
15. Twelfth grade	5	1.7%

TABLE 3c
MOST COMMON ARTICLE 7 ELIGIBILITY CRITERIA FOR ALTERNATIVE/RESIDENTIAL STUDENTS

Disability Label/Clinical Diagnosis	Number	Percentage
1.Emotional Handicap	178	64.0%
2.Autism	36	12.9%
3.Severe Mental Handicap	13	4.7%
4.Hearing Impairment	10	3.6%
5.Dual Sensory Impairment	9	3.2%
6.Multiple Handicap	7	2.5%
7.Mild Mental Handicap	6	2.2%
8.Other Health Impairment	6	2.2%
9.Moderate Mental Handicap	5	1.8%
10.Traumatic Brain Injury	4	1.4%
11.Learning Disabled	3	1.1%
12.Orthopedic Impairment	1	0.4%

TABLE 3d
MOST COMMON DSM-IV DIAGNOSES FOR ALTERNATIVE/RESIDENTIAL STUDENTS

DSM-IV Diagnosis	Percentage
1.Conduct/Oppositional Defiant Disorder	20%
2.Attention Deficit Disorder	19%
3.Depression	14%
4.Autism	13%
5.Post-Traumatic Stress Disorder	6%
6.Bipolar Disorder	4%
7.Schizophrenia	3%
8.Anxiety Disorder	2%
9.Pervasive Developmental Disorder	1%

TABLE 3e
MOST COMMON CHILD RISK CHARACTERISTICS FOR ALTERNATIVE/RESIDENTIAL STUDENTS

	Percentage	Frequency
1.Achievement Below Expected Grade Level	65%	192
2.Assaultive/Violent	47%	139
3.Medical Problems	28%	82
4.Self-abusive or Harmful to self	25%	75
5.School Suspension/Expulsion	15%	46
6.Running away	11%	34
7.Suicide Attempt or Ideation	9%	27
8.Arrest/Juvenile Court/Probation	8%	24
9. School Truancy	8%	23
10. Vandalism	6%	19
11. Drug/Alcohol Abuse	6%	19
12. Gang Involvement	5%	14
13. Sexual Perpetrator	5%	14
14. Fire Setting	2%	7
15. Arrested before age 13	1%	4

TABLE 3f
MOST COMMON PROBLEM BEHAVIORS FOR ALTERNATIVE/RESIDENTIAL STUDENTS

Behaviors	Frequency	Percentage
1. Noncompliance/defiance	223	74.6%
2. Lacks social skills	212	70.9%
3. Inattention/Poor concentration	207	69.2%
4. Hyperactive/impulsive	185	61.9%
5. Physical aggression	174	58.2%
6. Verbal Abuse/Profanity/Threats	174	58.2%
7. Anger/rage	149	49.8%
8. Temper tantrum	135	45.2%
9. Intermittent explosive	113	37.8%
10. Depressed/withdrawn	105	35.1%
11. Property destruction	103	34.4%
12. Lying	83	27.8%
13. Inappropriate Sexual behavior	62	20.7%
14. Self-Abuse	59	19.7%
15. Screaming	54	18.1%
16. Running/hiding	54	18.1%
17. Obsessive compulsive	50	16.7%
18. Self-stimulation	43	14.4%
19. Stealing	39	13.0%
20. Non-verbal	37	12.4%
21. Perseveration/echolalia	31	10.4%
22. Seizures	29	9.7%
23. Sleep disorder	26	8.7%
24. Not toilet trained	24	8.0%
25. Enuresis/encopresis	22	7.4%
26. Hallucination	14	4.7%
27. Eating disorder	14	4.7%
28. Pica	13	4.3%
29. Choking on Food	6	2.0%
30. Weapon in school	6	2.0%

TABLE 3g
MOST COMMON FAMILY RISK CHARACTERISTICS FOR ALTERNATIVE/RESIDENTIAL STUDENTS

Family Risk Characteristics	Percentage	Frequency
1. Parents Divorced/Separated	59%	175
2. Child Placed Out of Home	36%	107
3. History of Family Substance Abuse	28%	83
4. Family Involvement with Division of Family & Children	28%	83
5. Suspected Abuse/Neglect	26%	77
6. History of Family Violence/ Criminal Activity	25%	74
7. Sexually Abused	19%	58
8. History of Family Mental Illness/ Institutionalized	17%	50
9. Physically Abused	14%	43
10. Siblings Placed Out of Home	10%	29

TABLE 4d
SERVICES MOST FREQUENTLY USED
BY ALTERNATIVE/RESIDENTIAL STUDENTS

	Percentage	Frequency
1. Individual Counseling/psychotherapy	59%	176
2. Group Counseling/psychotherapy	58%	174
3. Family Counseling/psychotherapy	55%	163
4. Room and Board	43%	129
5. Case Management	40%	119
6. Medical Monitoring/treatment	36%	109
7. Recreation/Activity therapy	34%	102
8. Behavioral assistance/training at school	29%	86
9. Non-instructional Educational Services	27%	80
10. Assessment & Evaluation	25%	74
11. Behavioral assistance/training at home	16%	47
12. Home-school liaison	15%	44
13. Community-based instruction	15%	44
14. Challenge education	14%	43
15. Behavioral consultation, family	13%	40
16. Crisis intervention	12%	37
17. Medical evaluation	12%	36
18. Vocational education/training	10%	30
19. Parent education	9%	28
20. Behavioral consultation, school	9%	27
21. Assistive technology/services	8%	25
22. Speech and language therapy	8%	23
23. Habilitation training/Visually Impaired	8%	23
24. Community activities	7%	22
25. Assisted/supported living	6%	17
26. Job training/placement & support	5%	15
27. Respite Care	5%	14
28. Physical Therapy	4%	13
29. Occupational Therapy	4%	13
30. Local transportation	4%	12
31. Adapted/adaptive physical education	4%	12
32. Interpreting	4%	11
33. Rehabilitation counseling	2%	6
34. Long distance transportation	1%	3

TABLE 4e
AVERAGE COST PER STUDENT
FOR ALTERNATIVE/RESIDENTIAL SERVICES

	Average Cost per Pupil	Total Cost	Number of Students
1.Room and Board	30,061	3,877,814	129
2.Assisted/Supported Living	22,770	387,085	17
3.Interpreting	21,068	231,750	11
4.Behavioral Assistance/Training at School	10,631	914,300	86
5.Behavioral Assistance/Training at Home	8,883	417,491	47
6.Group Counseling/Psychotherapy	8,851	1,540,006	174
7.Non-Instructional Education Services	7,707	100,192	13
8.Respite Care	7,289	102,041	14
9.Community Activities	7,275	160,053	22
10. Challenge Education	7,111	305,781	43
11. Habilitation Training/Visually Impaired	6,054	139,262	23
12. Individual Counseling/Psychotherapy	5,514	907,227	176
13. Home-School Liaison	5,034	221,524	44
14. Administration/Supervision	4,902	338,289	69
15. Rehabilitation Counseling	4,811	28,870	6
16. Community-Based Instruction	4,277	188,220	44
17. Case Management	4,053	482,360	119
18. Recreation/Activity Therapy	3,963	404,318	102
19. Vocational Education/Training	3,578	107,352	30
20. Behavioral Consultation/School	3,133	85,594	27
21. Family Counseling/Psychotherapy	2,977	485,378	163
22. Crisis Intervention	2,935	108,609	37
23. Medical Monitoring/Treatment	2,898	315,973	109
24. Parent Education	2,873	80,455	28
25. Job Training/Placement & Support	2,852	42,785	15
26. Speech and Language Therapy	2,410	55,435	23
27. Occupational Therapy	2,087	27,132	13
28. Behavioral Consultation/Family	2,011	80,456	40
29. Physical Therapy	1,801	23,413	13
30. Assessment & Evaluation	1,763	130,498	74
31. Assistive Technology/Services	1,729	43,236	25
32. Medical Evaluation	1,611	58,006	36
33. Adapted/Adaptive Physical Education	1,367	16,404	12

Appendix D

MODELS OF COST

Estimation of Three Models Using Combined Child, Family, and Service Factors with Placement and Cost

INTRODUCTION

Three models were developed for this study to understand and explain the "why, what, where and how much" for children supported through Alternative/Residential Services. Each model is a simplified version of the placement process: identifying *why* children need services, *what* services are to be delivered, *where* the services are best delivered, and *how much* they cost. There are a number of reasons to do modeling: (1) models can enhance understanding and provide a level of explanation not possible when using only descriptive statistics; (2) although simpler than the reality they represent, models can still capture some essential features of a process and show which of those features play the more prominent roles; (3) models examine different ways of organizing a process to find out which provides the best fit to actual data; and (4), modeling itself focuses attention on both the conceptual and practical aspect of the process under examination: it is possible to see both the forest and the trees as the models are developed and tested.

The three models propose different paths or relationships between child risk factors, family risk factors, services provided, placement to implement those services, and the cost of those services. In each case, cost is the outcome or criterion variable and the goodness of fit of the model is determined by how well the model explains costs. The models were estimated using data collected for the 1996-97 Alternative/Residential Services study. The statistical method used is linear regression in a straightforward application known as path modeling. To estimate the models means to do two things:

(1) find values for each of the paths (relationships) that show the direction and strength of the connection between two variables; and (2) to find an R^2 that shows how well the model as a whole explains costs. The R^2 is the usual parameter associated with linear regressions.[1]

AN OVERVIEW OF THE MODELS

Figures 1, 2, and 3 show the three models, respectively called Model #1, Model #2 and Model #3, that are proposed for the Alternative/Residential Services process. Before describing the model variables in detail, it is useful to get an overall picture of the models and their representation in the figures. The figures are interpreted as follows.

Lines with single arrowheads show paths and directions of influence. An arrow from the child risk measure to the services measure represents the *hypothesis* that the child risk measure directly influences the service measure. If the value associated with this path is estimated to be non-zero, then such an influence is found to exist. If the value is positive, then as the child risk measure increases (or decreases) in size, so would the services measure increase (or decrease). If the value is negative, increases in one variable are associated with decreases in the other, and conversely. The size of the value—independent of sign—shows how much one variable influences another: larger values mean stronger influences, with the value 1 typically being a large influence, indeed. Lines with double-headed arrows mean that the variables are correlated but have no preferential direction of influence. The variables can be considered to be mutually influencing; the values have the same meaning as simple correlations.

In each model, there are two exogenous or external variables that drive the system: a child risk measure and a family risk measure. There are also three endogenous or internal variables that form the structure of the system: the placement variable, the services measure and the total cost to the state to serve the child. For each model, the relationships among the variables changes depending on the assumed order of the variables and the way they influence costs.

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[1] An R^2 is a number that measures how well a regression equation explains one variable in terms of others. The best possible regression has a value of 1, the worst a value of 0, whereas most are somewhere in between. An R^2 of .65. for example, means 65% of the variation of the outcome or criterion variable is explained by the other variables in the model.

Figure 1

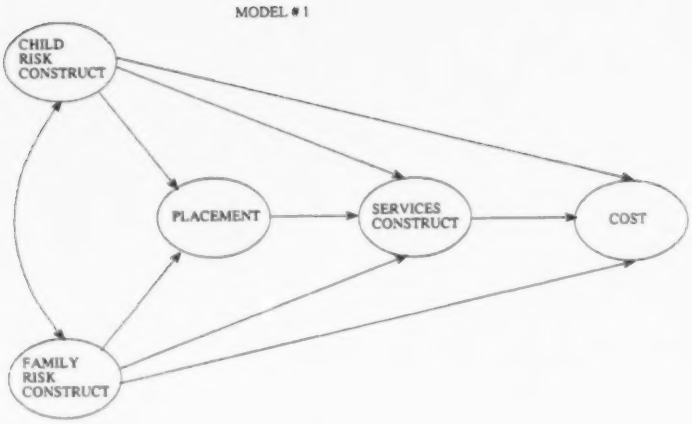

Figure 2

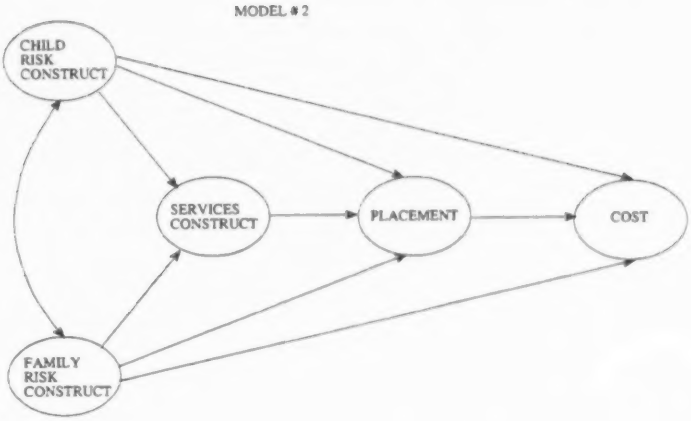

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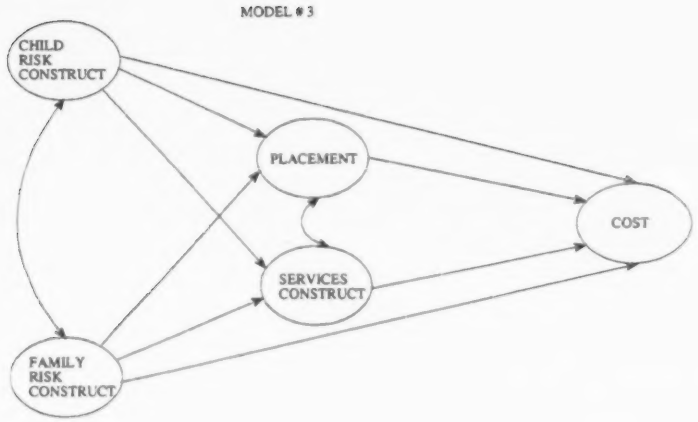
Figure 3



An important observation must be made about the models: *In each case only those paths or relationships listed on the figures are assumed to hold and therefore only those paths are estimated.* This means the following:

In **Model #1** the assumption is that placement is related to cost *only as mediated through the service measure*. Thus, no direct path from placement to cost is assumed or estimated, and placement immediately precedes services in the model. Conceptually, this model is the least satisfactory of the three since it assumes placement decisions are made prior to service decisions, and therefore independently of them. This seems to be an illogical way to serve children in need of alternative/residential services. It is included for the sake of completeness.

In **Model #2** the assumption is that the services measure is related to cost *only as mediated through placement*. Thus, no direct path from the services measure to cost is assumed or estimated, and services immediately precedes placement in the model. On conceptual grounds, this model is satisfactory even if it seems to place a burden on special education professionals to delineate clearly all required services before a placement decision is made.

In **Model #3** the assumption is that placement and the services measure *interact* to influence cost. Thus, there is no path between placement and the services measure; only a correlation is assumed, and neither variable precedes the other. This model is satisfactory both conceptually and practically. It is most likely that special education professionals would use their knowledge of placement options when designing service as well as use the needed services to determine placements.

Although estimates of the relationships and overall fit of the three models cannot *prove* which model best describes the practice, poor estimates or a poor fit can help *reject* a model. If estimates and measures of fit are reasonable for a particular model, the most that can be said is that the model is consistent with the data and that it might be a useful way to think about the process of providing Alternative/Residential Services.

THE FIVE MODEL VARIABLES

The unit of analysis in the models is the child supported through Alternative/Residential Services. The criterion or outcome variable, cost, is the total dollar amount paid by the Indiana Department of Education Division of Special Education for each child. The placement variable has two values: 0 if alternative services and 1 if residential (in state or out of state) for each model[2].

Three sets of factors were derived from the study survey data: seven child risk factors, three family risk factors, and seven service factors. These factors simplified and reduced the number of variables needed to describe risk and services for children. In order to make the models easier to conceptualize and work with, each set of factors was further reduced to one comprehensive measure. This was done by finding weights for each of the factors comprising the set. For the seven child risk factors, weights were derived *so as to maximize the correlations of the seven child risk factors with the seven service factors*[3]. The weights were used to derive a single measure. Similarly, weights

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[2] Because the difference between in– and out–of–state residential expenses is only a few percentage points, whereas the differences with alternative services is over 125%, it is reasonable to combine the residential placements and compare them only to alternative services.

[3] The statistical method used to find the weights is *canonical correlation*. This method was used to derive the at-risk index formula and is the method the IDOE uses to calculate Performance Based Accreditation (PBA) league standings.

were chosen for the family risk factors to maximize the correlations of the family risk factors with services. The new single measures can be considered weighted averages of the risk and service factors. The coefficients used in the weighting and the new measures are expressible as equations.

For the **child risk factors**, the new measure is:

.2813 ×	(Acting Out Behavior Factor)	+
–.7343 ×	(Developmental Disability Factor)	+
.1741 ×	(Juvenile Delinquency Factor)	+
.2470 ×	(Covert Behavior Factor)	+
–.1287 ×	(Medical Problems Factor)	+
.5191 ×	(Serious Emotional Problems Factor)	+
–.0142 ×	(Sexual Problems Factor).	

For the **family risk factors**, the new measure is:

.3136 ×	(Dangerous/Abusive Home Factor)	+
.9422 ×	(Unstable Family History Factor)	+
.1194 ×	(Mental Illness in Family Factor).	

And for the **service factors**, the new measure is:

.8056 ×	(Residential Treatment Factor)	+
–.1984 ×	(Related Services Factor)	+
.2304 ×	(Developmental Disabilities Factor)	+
–.0356 ×	(Home and Family Services Factor)	+
–.0984 ×	(School Consultation Factor)	+
.0686 ×	(Vocational Training Factor)	+
–.4944 ×	(Community Services Factor).	

Combining the many risk and service factors into three measures simplifies the ways in which models can be proposed and estimated. In effect, the claim is being made that there exist three latent variables or underlying *constructs* that effectively describe the risks children are subject to and the services they are provided: a single child risk measure, a single family risk measure, and a single services measure. These three

measures or constructs capture, simplify and describe the information contained in the original 17 separate factors, which in turn were derived from all the child and family risk and service variables listed on the study survey. These constructs are the underlying measures that relate together risk factors, services, placement (as alternative or residential) and costs in the three models.

The weights tell how much each of original factors contributes to the single underlying construct defined by those weights and factors.[4] The weighted coefficients for each set of factors that define the constructs imply that some factors influence the constructs more than others. For example, the two original child risk factors most influencing the child risk construct are developmental disability factor and serious emotional problems factor, with the first weight being a negative –.7343 and the second a positive .5191. Thus a high value on the child risk construct could mean a low value on the developmental disability factor and a moderately high value on the serious emotional problems factor.

DISCUSSION OF THE MODEL ESTIMATES

Two things must be kept in mind when looking at the estimates of the models as listed in Figures 4, 5 and 6: (1) the constructs describing risk factors and services were derived to maximize their intercorrelations and so should yield the best models; and (2) only the paths listed in the models were estimated.

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[4] The child and family risk factors and the service factors are standardized variables, each with a mean of zero and a standard deviation of 1. So too are the new weighted combinations or constructs. The fact that the weights used to define the measures are of various sizes and signs means that the relationships that exist between the original risk factors and the original service factors are not simple. Indeed, a glance at the defining equations show they are quite complex.

Figure 4

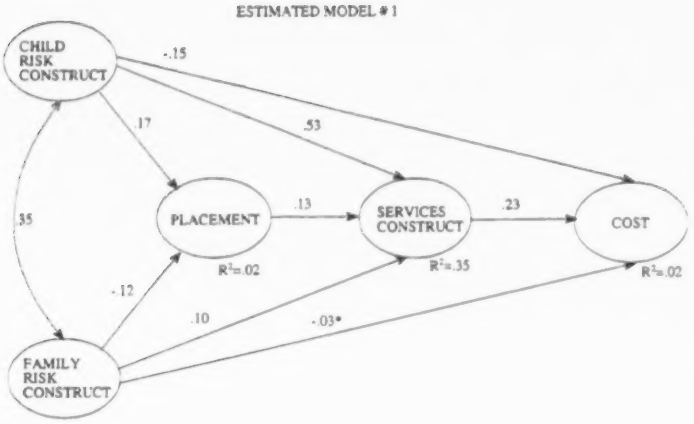


Figure 5

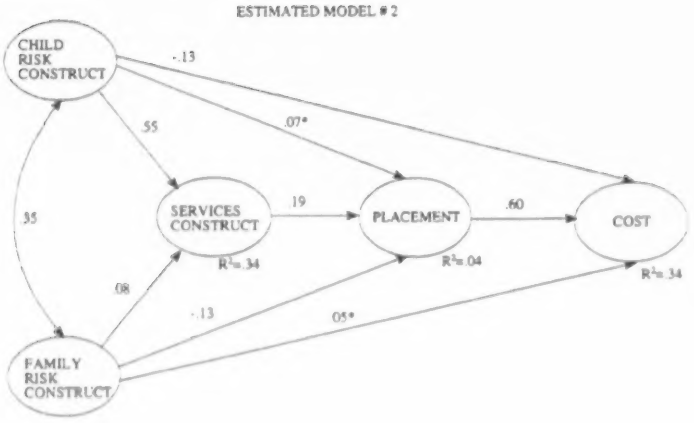
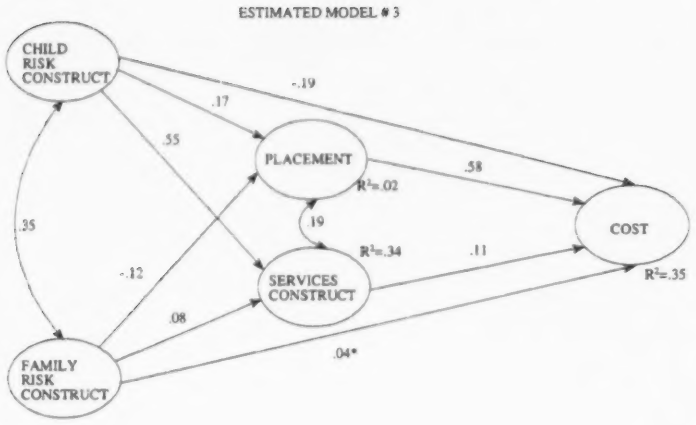


Figure 6



Overall Model Fit. As a rule, given the technique used to evaluate the models (linear regression), it is often difficult to answer the question, "Which model is best?" However, in this case, if the overall measure of model fit is the R^2 of the regressions with cost as the dependent variable, it is easy to *reject* one of the models, namely, Model #1 (Figure 4). This is because Model #1 has only an R^2 of 0.02, a very poor fit[5] if the purpose of the model is to explain costs when placement occurs *before* the services construct. Thus, it is reasonable to say that placement—alternative or residential—is not directly determined by the child and family constructs but must first be mediated through or with services. It is therefore reasonable to conclude that placements are not chosen before services.

The R^2s of cost for the other two models are almost the same: 0.34 for Model #2 and 0.35 for Model #3. Both are reasonably high for these kinds of models. Hence, either of these models explains costs reasonably well—Model #2, where service decisions precede placement decisions, which in turn influences cost, or Model #3, where

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[5] A perfect R^2 of 1 is hardly ever attained in social science research but an R^2 of .02 means that only 2% of the variation in placement is explained by the model, essentially nothing. An R^2 of .35 on the cost variable, for example, means 35% of the variation in cost is explained by the model. That is a modest number but not untypical of social science research.

placement and service decisions interact to determine cost. The R^2 between the placement and services and the other variables in the two models does not provide a reason to prefer one model over the other. Model #3 might be the most sensible model given what is understood about how placement decisions are made. However, only the development of an accepted conceptual model describing the process of identifying both needed services from risk factors and the best means of providing those services (placement) might distinguish between Models #2 and #3. The estimated models give some clues as to how such a conceptual model might be formulated but they are not a replacement for it.

Discussion of the Paths in Models #2 and #3. Note that in both Models #2 and #3 (Figures 5 and 6), the child risk construct has a relatively large and positive effect (.55) on services but only a modest effect on placement in Model #3 and no effect in Model #2[6]. This suggests that the child risk factors (as measured by single the child risk construct) do in fact strongly influence the services provided. On the other hand, the family risk construct has little (.08) influence on services in either model. Interestingly, the family risk construct negatively (–.13 and –.12) influences placement. This implies that children high on the family risk construct are slightly more likely to be placed in an alternative rather than residential settings.

In both models there is a powerful—and not surprising—influence of placement on costs. The size of the influence (.60 and .58) simply means that alternative services are much less costly than residential placement. In Model #3, there is also a modest direct connection between services and cost (.11). This means that there is a combination of services that can increase costs independently of placement but that the effect is modest. What these services might be cannot be determined from the model.

There is no direct connection between family risk factors and costs in either model, that is, the value of the paths (.05* and .04*) are indistinguishable from zero. What effect family risk factors have on costs is indirect and acts through placement and choice of services. However, there is an interesting direct connection between child risk factors and cost which is modest in size and negative for both models (–.13 and –.19). Since services have a modest direct effect on costs in Model #3 and an indirect effect via placement in Model #2, the negative direct connections between child risk factors and costs suggest there are some combinations of services (not determinable from the models) that act to *reduce* overall costs. This occurs even when those services might suggest

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[6] Paths not significantly different from zero are marked by an '*' next to the values on the paths. That is, .05* means that the value .05 is not statistically different from zero.

placement in a costly residential setting. Another way to look at this is that the relationship between services and costs is not simple, linear, and direct: some child risk factors act to suggest costly residential placement, but also act to reduce costs.

SUMMARY OF THE MODEL ESTIMATES

Both acceptable models strongly suggest that a package of services is determined on the basis of risk factors. It appears that special education professionals are determining services for children from child and family risk factors before or at the same time that services are determined, and it is from this combination of services and placements that costs are determined. Overall, either Model #2 or Model #3 provides insight into the placement process and the factors that determine program costs.

IMPLICATIONS OF MODELS #2 AND #3

Both of the models suggest that placement options might be limited by the family risk construct independently of the child risk construct. This means that certain values on the family risk factors (which are combined into the family risk construct) imply that alternative placement takes precedence over residential placement. This might be because residential facilities might not want to treat children from certain types of families (e.g., those from abusive families) or the juvenile justice system might prevent some children from being so placed. Hence the linkages between family characteristics and placement should be closely examined.

Since residential placements are much more costly than alternative services, and since services have a relatively weak connection with placement, the models suggest one of two things:

(1) either there are factors driving services and placement which have not been adequately addressed in the study, or

(2) insufficient attention is being paid to the availability of non–residential services *before* placements are considered. That is, even though the models support the idea that decisions about services and placements interact, they also indicate that the interaction is weak. Therefore, more attention to services

first might reduce costs by substituting alternative placements for residential. In this case more services could be provided at substantially lower cost but they might be services different than those currently used.

Finally, even though both models have reasonable R^2s of .34 and .35, and so explain about a third of the variation in costs of services for the children, the models leave two-thirds of the variation unexplained. Thus, much of the cost associated with services for a child can neither be clearly and conclusively attributed to the risk factors as defined in the study nor to the services provided nor to the placement of the child. Although the present study has provided much useful information about the Alternative/ Residential Services process, a great deal more work needs to be done in understanding how costs are determined.